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NUMBER  
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THE  
HAWAIIAN ISLANDS

WITH  
MAPS AND CHARTS.

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WASHINGTON:  
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FEBRUARY, 1893.







THE

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# HAWAIIAN ISLANDS.

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## REPORT

ON THE

PHYSICAL FEATURES, PORTS OF LANDING, SUPPLIES,  
CLIMATE, DISEASES, ETC.

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COMPILED FROM THE BEST AVAILABLE SOURCES

FOR THE

INFORMATION OF THE ARMY.

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WASHINGTON :  
GOVERNMENT PRINTING OFFICE.

1893.

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# REPORT

ON

## THE HAWAIIAN ISLANDS.

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The Hawaiian islands lie between parallels  $18^{\circ} 50'$  and  $23^{\circ} 5'$  north latitude, and between meridians  $154^{\circ} 40'$  and  $151^{\circ} 50'$  west from Greenwich. A line drawn through the axis of the group would approximate roughly the segment of a circle convex towards the northeast; the chord connecting the most widely separated points would have a length of about four hundred statute miles.

Honolulu, the capital and chief city, lies 2,080 miles from San Francisco; approximately 3,800 miles from Auckland; 4,500 miles from Sydney; and 4,800 miles from Hongkong.

Mean time Honolulu noon is equivalent to 10h. 31m. 26s. Greenwich mean time.

### COMMUNICATIONS WITH THE UNITED STATES.

*San Francisco to Honolulu.*—The *Australia* of the Oceanic Steamship Company and the *Zealandia* (W. J. Irwin) leave San Francisco and return every other Tuesday.

The Oceanic Steamship Company's steamers *Alameda*, *Mariposa*; and the Union Steamship Company's steamer *Monowai*, leave San Francisco for New Zealand *via* Honolulu once a month.

*Time.*—San Francisco to Honolulu, seven days.

Sailing vessels, with good passenger accommodations, run regularly from San Francisco to Honolulu.

*Sailing time.*—San Francisco to Honolulu, ten to eighteen days. (See Appendix I.)

Pacific mail steamers, San Francisco to China and Japan, stop at Honolulu every other trip.

"A new company sends its first steamer this month (February, 1893) from Tacoma and Seattle to Honolulu. Steamers of the Occidental and Oriental line to China and Japan [N. Y. Tribune, February 16] are due to stop at Honolulu."

Steamers of the Oceanic and Pacific Mail companies are under the United States flag. (See Appendix I.)

### POSITION, AREAS, AND GEOGRAPHICAL FEATURES.

The strategic value of the islands and their geographical position are indicated on the accompanying chart (A). In general the islands are mountainous, covered with verdure, and in parts, especially of Hawaii, possessing very considerable areas of forest whose vegetation is that of the tropics.

The Hawaiian group is composed of eight inhabited, and of four uninhabited, islands. [Chart B.] The names and dimensions of the inhabited islands are:

NAME.	Length.	Breadth.	Area.
	<i>Miles.</i>	<i>Miles.</i>	<i>Square Miles.</i>
Hawaii .....	90	74	3,950
Oahu .....	46	25	730
Maui .....	48	30	620
Kauai .....	25	22	500
Molokai .....	40	7	190
Lanai .....	17	9	100
Niihau .....	20	7	90
Kahulaui .....	11	8	60

The first five of these islands contain the bulk of the population as well as the chief industries.

Three of the four uninhabited islands of the group are Kaula, Lenua, and Molokini.

The total area of the inhabited islands is about six thousand and forty square miles.

"All of these islands are volcanic. No other rocks than volcanic are found upon any of them excepting a few remnants of raised sea beaches composed of consolidated coral sands. All the larger ones are very mountainous."

"The culminating points of the island Hawaii are Mauna Kea, 13,900 feet, and Mauna Loa, 13,700 feet," the highest points of the group.

"In general the island group consists of the summits of a gigantic submarine mountain chain, projecting its loftier peaks and domes above the water." \*

On the island of Hawaii the volcanic forces are still in operation; on the other islands they are extinct.

None of the mountains are of sufficient height to reach the line of eternal snow.

#### SOIL.

"Only a small proportion of the area of the islands is capable of sustaining a dense population. The most habitable tracts are near the seacoast and only a part or even a small part of these are really fertile.

"The interior portions are mountainous and craggy, with a thin soil, admirable in a few localities for pasturage, but unfit for agriculture.

"Many parts of the shore belt are arid and almost barren. Others are covered with lavas too recent to have permitted the formation of soil, and still others are trenched with ravines so deep and abrupt that access is difficult.

"Deep rich soils at altitudes adapted to the growth of the sugar cane probably form less than the fortieth part of the entire area.

"Shallower soils, however, are a little more extensive and yield other crops of tropical staples in abundance."

#### CLIMATE.

The climate of the Hawaiian islands is warm but salubrious, the temperature equable, and the sky usually clear. In the shade it is never hot and is seldom chilly, and there is so little humidity in the air that it is rarely sweltering, though during the months of January, Feb-

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\* See Hawaiian volcanoes, Captain C. E. Dutton, U. S. A. Captain (now Major) Dutton adds: "Mauna Loa and Mauna Kea, referred to their true bases at the bottom of the Pacific, are therefore mountains not far from 30,000 feet in height." Major Dutton is frequently quoted in the following paragraphs relating to the physical characteristics of the islands.



ruary, and March the wind blows strongly from the southwest, and the atmosphere is damp and unpleasant. After such seasons, the arid westerly slopes are clothed with verdure, and the capacity of the pastures vastly increased.

"Upon the islands themselves it may be said that there are almost as many climates as there are square leagues, and the differences of climatic conditions, exhibited by localities separated only half a dozen miles, are extreme.

"As a general rule the windward sides are excessively rainy, the precipitation frequently exceeding 200 inches in a year. The leeward sides are generally arid, but to this there are some striking exceptions; whenever the land barrier is low enough to permit the trade winds to blow over it, the lee of the barrier is invariably dry, and sometimes is as parched and barren as the sage plains of the Rocky mountains; the winds throw down their moisture copiously as they rise to the dividing crest, and descend hot and dry; but when the barrier is lofty enough to effectually oppose the drift of the air, the lee becomes subject to the simple alternation of daily land and sea breeze. As the sea breeze comes in and ascends the slope, it sends down rain; as the land breeze floats downward and outward, it is dry and clear.

"The sea breeze sets in a little before noon, and the land breeze goes out a little before midnight.

"Relatively to human comfort, the climate is perfection. It is never hot, and at moderate altitudes it is never cold. The heat of summer is never sufficient to bring lassitude, and labor out of doors is far more tolerable than in the summer of New England or Minnesota."

Where the mountains are low, as in Oahu, the rains extend over them and maintain copious streams for irrigation of the leeward lands where little rain falls. Very much more rain falls on the windward northeast sides of the large islands. At Hilo in Hawaii as much as 20 feet has been measured in one year. At Honolulu the mean annual rainfall for five years ending 1877 varied from 32.30 to 46.40 inches, giving an average of 38 inches.

Hurricanes and typhoons are said to be infrequent. There is, however, at Kawaihae in the island of Hawaii, a wind called the *mumuka* which rushes violently down between the mountains, and is dangerous to shipping. When hurricanes occur on the island of Maui, great damage to the sugar crop ensues.

The temperature varies from 55° in winter to 70° in summer for the early mornings, and attains an average maximum of 75° in the winter and 85° in the summer, for afternoon heats.

There is no rapid, sudden change; cold or hot waves are unknown.

During the heat of the day the sun-heated lava and rocks create a strong draught, loaded with vapor from the ocean; this vapor, at 2,000 feet elevation, forms a continuous cloud bank, covering the mountains.

Hail sometimes falls in the vicinity of Hawaii.

Table from Pacific Coast Commercial Record showing temperatures in Honolulu:

Maximum temperature for 1891 in Honolulu.....	89°
Minimum temperature for 1891 in Honolulu.....	54°
Maximum daily range of the year.....	22°
Average weekly maximum from July 1st to October 1st.....	86°

Table from "Vistas of Hawaii" showing temperature for 1890:

DATE.	6 a. m.	1 p. m.	9 p. m.
January 7	67°	77°	69°
February 4	68	72	69
March 4	66	76	69
April 1	67	78	71
May 6	69	78	70
June 3	73	78	74
July 1	73	82	75
August 5	72	84	75
September 2	72	83	75
October 7	75	81	76
November 4	71	80	72
December 2	69	78	72

From the above, it is evident that the climate of the Hawaiian islands is in general that of a mild summer. The hottest months are July and August, when the thermometer sometimes rises to 90°, but this is considered unusual. Frost is unknown; rains are warm; and the days and nights are of so nearly the same temperature that little daily change of clothing is necessary.

## EARTHQUAKES.

Earthquakes are of common occurrence in the islands, but they usually have their center of disturbance in Hawaii. In the islands to the northwestward the shocks are infrequent and feeble. The shocks are seldom of a very alarming or destructive character; but small or moderate tremors, are frequent.

## POPULATION.

The total population of the Hawaiian islands in 1890\* was 89,990, of which 58,714 are males, 31,276 females.

*Latest Official Census of the Hawaiian Islands.*

(Taken December 28, 1890.)

## BY DISTRICTS AND ISLANDS.

HAWAII.		LANAI	
Hilo	9,935		174
Puna	834	OAHU.	
Kau	2,577	Honolulu	22,907
North Kona	1,753	Ewa	2,155
South Kona	1,812	Waianae	903
North Kohala	4,303	Waialua	1,286
South Kohala	538	Koolauloa	1,444
Hamakua	5,002	Koolaupoko	2,499
	26,754		31,194
MAUI.		KAUAI.	
Lahaina	2,113	Waimea	2,523
Wailuku	6,708	Niihau	216
Hana	3,270	Koloa	1,755
Makawoo	5,266	Kawaihau	2,101
	17,357	Hanalei	2,472
		Lihue	2,792
MOLOKAI	2,632		11,859

## BY NATIONALITY.—1890 AND 1884 COMPARED.

	1890.	1884.		1890.	1884.
Natives .....	34,436	40,014	Norwegian .....	227	392
Half-castes .....	6,186	4,218	Britons .....	1,344	1,282
Chinese .....	15,301	17,937	Portuguese .....	8,602	9,377
Americans .....	1,928	2,066	Germans .....	1,034	1,600
Hawaiian-born, foreign par. ...	7,495	2,040	French .....	70	192
Japanese .....	12,360	116	Other foreigners .....	419	416
			Polynesian .....	588	956
Total Population, 1890, 89,990.			Total Population, 1884, 80,578.		

*Population by Nationality and Sex of the Hawaiian Islands, and also of the Principal Township Districts.*

(Compiled from the latest census, 1880.)

NATIONALITIES.	Honolulu, Oahu.	Wailuku, Maui.	Lahei, Maui.	Hilo, Hawaii.	Lihue, Kauai.	Population whole islands.
Natives, males .....	4,494	1,260	687	1,076	411	18,364
“ females .....	4,068	1,178	599	900	310	16,072
Half-castes, males .....	1,257	267	199	175	49	3,085
“ females .....	1,346	248	101	189	61	3,101
Chinese, males .....	3,950	1,202	89	1,264	347	14,552
“ females .....	457	33	5	19	9	779
Hawaiian-born, foreign parents, males .....	1,250	254	41	537	203	3,909
“ “ females .....	1,236	215	39	513	177	3,586
Americans, males .....	767	65	15	90	11	1,298
“ females .....	431	23	11	27	7	630
British, males .....	529	53	7	68	8	982
“ females .....	267	5	4	16	2	362
Germans, males .....	261	29	7	27	163	729
“ females .....	105	5	7	7	108	305
French, males .....	25	7	—	4	—	46
“ females .....	23	—	—	—	—	24
Portuguese, males .....	933	402	29	869	237	4,770
“ females .....	799	326	24	686	195	3,832
Japanese, males .....	277	842	249	2,703	363	10,079
“ females .....	111	183	40	708	60	2,281
Norwegians, males .....	55	31	—	—	6	155
“ females .....	21	11	—	—	6	72
Polynesians, males .....	49	22	33	22	23	404
“ females .....	23	14	15	8	17	184
All others, males .....	151	36	7	27	16	371
“ females .....	22	32	2	—	3	48
Totals .....	22,907	6,708	2,113	9,935	2,792	89,990

## CHARACTERISTICS, RELIGION, EDUCATION.

The natives are a good-tempered, light-hearted, pleasure-loving people. It is probable that little difficulty is found in governing them as, of themselves, they are not inclined to turbulence, nor disposed to revolt against any form of government. Like children, they are easily led and controlled. Even when the Hawaiian islands were discovered, the people were by no means savages, but had an organized state of society. After discovery, civilization made progress as rapidly, it is said, with these people as with the Japanese; and, in twenty-five years after the landing of the missionaries (1820), the whole people had, in a great measure, become Americanized. But to-day, except politically as the one-time owners of the islands, the natives are but an unimportant element of the people and their consent or



opposition could have but little influence upon the course of events. They are a peace-loving race, and, in a military sense, are not worth consideration, but they are brave individually and make, it is said, excellent seamen. Little resistance could be anticipated from them even in defense of their country.

## RELIGION.

All forms of religion are tolerated. According to the latest statistics there are:

Protestants .....	29,685
Roman Catholics .....	20,072
Mormons .....	3,576
Hebrews, less than .....	100

## EDUCATION.

Education is general—

There are 178 schools, with 10,000 pupils, of whom 5,559 are natives and 1,573 half-castes. In 1890-92 \$326,922 was allotted for public instruction. (Sum allotted for public instruction, 1892-94, \$210,600. Statesman's Year Book, 1893.)

## LAWS.

The laws are modeled on those of the United States. There is a supreme court of justice, and, in addition, circuit judges and justices of the peace.

## MILITARY FORCES AND POLICE.

The military forces authorized by law consist of the household guards, fixed at sixty-five men. It is reported that all but sixteen of these men have been discharged, that number being retained as a guard for the deposed queen (February, 1893). Volunteer military organizations are prohibited by law.

There is also an organized police force.

## LANGUAGE.

The language is very largely made up of vowels, giving to the spoken tongue a pleasant liquid sound somewhat difficult to acquire. The consonants all have the English sound, the vowels that of the German vowels, except *i*, which is the same as the German *ie*. There are no silent letters in the written Hawaiian language.

English is very generally spoken throughout the group.

## GOVERNMENT.

Under the great chief Kamehameha the islands of the Hawaiian group became consolidated into a kingdom about the beginning of the present century, and continued, with occasional interference from European powers, as an independent nation under the rule of the descendents of the first great chief.

At the beginning of the present year the government was a constitutional monarchy, ruled by a queen aided by a cabinet consisting of four ministers and by a legislature composed of twenty-four members of the house of nobles and twenty-four representatives. These, with the ministers, made a total of fifty-two. Members of both houses were elected by popular vote. An educational qualification was necessary for all voters, and a property qualification for electors for nobles. In January of this year the revolution occurred which resulted in the present provisional government.

## BUSINESS.

Business is almost entirely carried on by foreigners, principally Americans, British, Germans, and Chinamen. Many of the principal offices are filled by foreigners, or by native born whites.

## CURRENCY.

Gold and silver coins of all nations are current as legal tender at real or nominal value. From 1884, only United States gold coins have been legal tender for more than \$10; no paper money exists excepting in form of treasury certificates for coin deposited.

## FINANCE.\*

The budget is (was) voted for a biennial period. The following table shows the revenue and expenditures in dollars for the last five financial periods:

	1882-84.	1884-86.	1886-88.	1888-90.	1890-92.
Revenue -----	\$3,092,085	\$3,010,655	\$4,812,576	\$3,632,197	\$4,408,033
Expenditures -----	2,216,406	2,988,722	4,712,285	3,250,510	4,095,891

The revenue is largely derived from customs (\$1,204,305, 1890-92) and internal taxes (\$963,495, 1890-92), while the largest item of expenditure was for the interior (\$1,641,848, 1890-92). The debt, March 1892, was:

Bonded debt .....	\$2,314,000
Due depositors' Postal Savings Bank .....	903,162

Interest varies from 5 to 12 per cent.

## COMMERCE—EXPORTS AND IMPORTS.

Sugar and rice are the staple industries, while coffee, hides, bananas, and wool are also exported.

The following table shows the commerce (in thousands of dollars) and shipping for five years:

	Imports.	Native exports.	Customs receipts.	Ships entered.	Tonnage.
	1,000 dolls.	1,000 dolls.	1,000 dolls.		
1887 .....	\$4,944	\$9,435	\$595	254	210,703
1888 .....	4,541	11,631	546	246	221,148
1889 .....	5,439	14,040	550	288	223,567
1890 .....	6,962	13,143	696	295	230,120
1891 .....	7,439	10,259	660	310	284,155

The chief exports in 1891, were:

Sugar .....	lbs..	274,983,580
Rice .....	lbs..	4,900,450
Bananas .....	bunches..	116,660
Wool .....	lbs..	97,119

The imports are mainly groceries, provisions, clothing, grain, timber, machinery, hardware, and cotton goods.

Ninety-one per cent. of the trade is with the United States.\*

\* Statesman's Year Book, 1893.

## PRODUCTS, RESOURCES, VEGETATION.

Besides sugar and rice, the staple products, coffee, bananas, oranges, and other fruits, are largely grown. Food products are abundant, especially of the kind suitable to a hot climate.

The native food consists largely of the taro plant, of which the best varieties are grown in shallow ponds of fresh water. It is stated that about forty square feet of taro will yield enough to supply one man for a year, this being his principal food. From this plant is made the *poi*, which is the ordinary food of the Kanaka.

The sweet potato grows even amongst the rocks and flourishes abundantly in good soil, while the common potato sometimes grows well, though is often injured by worms.

Wheat and corn are grown; the former was once cultivated for export. Flour is made, but it is said that the islands now receive all their cereal products from California.

The quality of the coffee raised is said to be equal to the choicest.

The climate is also very favorable to the growth of the long staple sea island cotton, but as this variety must be picked by hand, the high price of labor in the islands renders its culture unprofitable.

Tropical fruits of nearly all kinds grow in the greatest abundance, the orange, lemon, lime, mango, pineapple, chirimoya or custard apple, the alligator pear, pomegranate, and guava, all of which are exotic.

The banana is indigenous, and is the most abundant of all fruits; besides it, there are the ohia apple—a fruit peculiar to the Pacific islands, soft, juicy, and mildly acid—many varieties of palms, the choicest trees of India, the caoutchouc, the papaya, the traveler's tree of Madagascar, and other foreign plants.

## INDUSTRIES.

"The chief industry of the islands is the cultivation of sugar cane. For this the soil (although the area is limited) seems better adapted than any other in the world. The yield will average about five thousand pounds of sugar to the acre, and choice fields sometimes yield twice that amount. Large amounts of American capital have been invested in the plantations and in the accessory commerce."

Large flocks of sheep and herds of cattle are found. These animals are raised chiefly for their wool and hides. On the island of Lanai great flocks of sheep pasture, while in Hawaii considerable numbers of wild cattle are still found in the mountains;\* wild goats and wild hogs also exist in great numbers, and it is said that wild horses and asses are also found.

## DISEASES (OTHER THAN LEPROSY).

It is asserted that diseases, other than leprosy, are not as troublesome as in most places considered healthful. Malarial fevers are thought to be infrequent, nevertheless in the monthly table (March, 1891), the greatest number of deaths for the year, eighty-nine, is recorded as due to "fever."

Consumption (probably imported cases) comes next with seventy-four. "Old age" next with fifty-nine. Amongst the other more important causes of death are diarrhœa twenty-nine, dysentery fifteen. From diseases of the liver but two died, while twenty-five died of disease of the heart.

From this it would seem that the diseases common to the tropics—fever and stomach troubles, are to be guarded against. Rheumatism is prevalent in many of the damper localities; smallpox occasionally appears; and measles has on one or two occasions carried off many of the natives, owing to their manner of life, but this disease is now easily controlled when it makes its appearance. Lung and chest troubles are almost unknown to natives of the islands. In fact the Hawaiian islands are regions of unusual healthfulness.

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\* Descended from the animals introduced by Vancouver in 1792.



The general health of the natives is steadily improving; leprosy, now largely under medical control, is gradually being stamped out. (See Leprosy.)

#### MANNER OF LIFE, CLOTHING.

The whites live, of course, much as they live at home, and usually in well constructed houses of European style. The natives live as a rule in grass huts, upon native food, largely taro and fruit, and wear clothing of light cotton stuff, a straw hat, but shoes rarely.

Woolens are not in general use, but very light flannels are recommended for strangers at all seasons.

At night blankets are rarely needed, but a light blanket is often comfortable. Houses have no fireplaces.

For troops, clothing for all seasons should be light flannel drawers and shirts, wide straw hats, or helmets, and the light quality of outer garments issued to troops on the southern stations.

Ample tentage should be provided for use in localities where heavy and sudden rainfalls are frequent, and light blankets should be carried.

The ration should be suited to the requirements of a warm climate.



## INDIVIDUAL CHARACTERISTICS OF THE EIGHT INHABITED ISLANDS OF THE HAWAIIAN GROUP.

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### ISLAND OF OAHU (Map C).

This island has the form of an irregular quadrangle; it lies twenty-three miles northwest of the nearest island of the group, Molokai. Length about forty-six, breadth about twenty-five miles.

Oahu, though not the largest, is the most important of the Hawaiian group, as it contains Honolulu, the capital, chief seaport, and principal city.

*Coast.*—The greater part of the island is surrounded by a coral reef often half a mile wide.

The windward side of the island presents a gigantic cliff hardly accessible, except at one point reached by a road cut with great labor from the mountain side; but the leeward side descends from the mountain to the sea in very moderate slopes deeply cut by ravines.

The northeastern coast of the island is generally a rugged plateau descending by gentle slopes to the water. When viewed from the ocean, this coast appears to be formed of detached hills rising steeply and covered with woods. The intervening valleys are fertile and well cultivated. From the southeast extremity of the island, called Makapuu point, to the Mokapu peninsula, the coast is often marked by scattered islets and rocks; and beyond, the peninsula is indented by a considerable bay extending to Kaoio point; thence to Kahuku, the northern point of Oahu. Along this part of the coast is a narrow strip of land, varying from a half to two miles in breadth, only a few feet above the level of the sea. It is very fertile, and has a gradual ascent to the foot of the mountains.

From Kahuku to the village of Waimea lies a level plain from two to six miles wide, and but slightly above the level of the sea. It is a good pasture, and at many of its frequent holes and crevices may be seen streams of clear and cool fresh water making their subterranean way from the mountains to the outlets in the sea below low-water mark.

The southwest side of the island is composed chiefly of craggy mountains, some descending abruptly to the sea, others terminating a small distance from it; thence a low border of land extends to a shore formed by sandy beaches, bounded by rocks on which the surf beats heavily.

The southwest extremity is Laeloa, or Barber point; thence the shore continues low, flat, and covered with bushes to the entrance of Pearl river, about twelve miles from Honolulu.

Some of the land in this vicinity is of extreme fertility.

*Interior.*—Two parallel ranges of hills traverse Oahu from southeast to northwest, separated by a low plain. The highest point is Kaula, 4,060 feet, in the west range. The east range is much longer than the other, and its ridge is very broken; lateral spurs extend from many ravines on the land side; but for thirty miles on the other side the range presents to the sea a nearly vertical wall without a break. There are few craters in the loftier heights, volcanic activity seems to have ceased; but several groups of small cones with craters some of lava some of tufa, exist. Valleys are numerous, with lateral ravines, in which water courses and cascades are found.

A chain of mountains rises near the center of the east part of the island to 3,175 feet, and descends near the middle into the Ewa plain, which divides this range from the distant and



elevated mountains that rise in a line parallel with the southwest shore. The Ewa divide lies five miles west of Honolulu. This Ewa plain is nearly twenty miles in length from Pearl river to Waialua, and in some parts is nine or ten miles across; its soil is fertile, and watered by a number of rivulets running along deep water courses emptying into the sea.

*Plain of Honolulu.*—This plain is some ten miles in length, and in some parts two miles in width from the sea to the foot of the mountains.

The whole plain is covered with rich, alluvial soils, in places two or three feet deep. Under this lie volcanic ashes and cinders fourteen to sixteen feet deep, resting on a stratum of solid non-volcanic rock, a kind of sediment deposited by the sea, in which branches of white coral, bones of fish and animals, and several varieties of marine shells have been found. A number of wells have been dug to a depth of twelve to thirteen feet in the substratum of rock, always reaching good clear water, which, though free from salt or brackish taste, rises and falls with the tide.

Inland from Waikiki, near Honolulu, and reached by the Punahou road, lies the Manoa valley, whose upper portion divides into numerous cañons.

There is a broad valley called Nuuanu, bounded by a mountain wall twenty miles in length, which rises from the green, rolling plain below.

Less than five miles from Honolulu, in a westerly direction, lies the valley of Moanalua. Here are fine rice fields, cocoanut groves, and fish ponds.

In the district of Waianae the bases of the mountain lie farther from the sea and a narrow valley, presenting a fertile and cultivated aspect, seems to wind for some distance through hills.

In the Waialua bay district the soil is sandy and poor, but a short distance inshore an agreeable change takes place.

#### CITIES, TOWNS, AND PORTS, OAHU.

##### *Honolulu.*

Honolulu is the capital and principal port of the Hawaiian islands, and is situated on the south side of Oahu, on a narrow plain at the foot of the eastern range of mountains.

The aspect of the country around Honolulu, as seen from the roads, is barren; and the plain on which the town stands is destitute of verdure. This plain extends east and west from the town, while behind it the land rises gradually towards the Nuuanu valley. Several crater-shaped hills are in sight, one of which, named Punch Bowl hill, 498 feet high, lies close to the northeast side of the town.

The central part of Honolulu consists of regularly laid out streets, on either side of which stand houses and warehouses of European style, frequently placed within spacious, enclosed gardens. The outer portions of the town are chiefly composed of grass huts inhabited by natives. Honolulu would probably burn easily to the ground.

Amongst the principal buildings are the spacious government houses, in which all the public offices are enclosed; the king's palace; a fort; two hospitals; several churches and chapels belonging to the different religious denominations; a customhouse; sailors' home; and several schools.

*Hospitals.*—There is a quarantine hospital on the west side of the harbor, and a good general hospital to which sailors and others are admitted at \$1.25 per diem.

*Shops.*—There are foundries, workshops, and shipyards where considerable repairs can be effected.

*Patent slip.*—A patent slip has been constructed by the government on the east side of the harbor opposite the outer lighthouse. This slip can take a vessel of 1,700 tons.

The harbor is formed by an opening in the coral reef, about one hundred and fifty yards wide at the entrance and three hundred yards wide off the town, and rather more than a mile in length. Though small it is capable of accommodating a good number of vessels. Depth on bar is thirty feet.

*Wharves.*—The railway crosses the flats on the north side of the harbor and terminates at two wharves, with nineteen feet of water alongside each of them. The west wharf is used by ships.

There is in the harbor altogether 1,900 feet of wharf frontage, with a depth of twenty-one and a half feet, and seven hundred feet with depths of from seventeen to nineteen feet, and about 1,200 feet with less depth.

*Tides.*—The tidal streams are regular, running six hours each way. The flood is to the westward. Springs rise from two and a half to three feet.

*Supplies.*—Supplies of all kinds are plentiful. Beef, mutton, fowls, eggs, vegetables, and fruit can be obtained at moderate prices.

Water can be procured from the shore in a tank. It is good, but very expensive, even in the inner anchorage being \$2.50 a ton. This for ships.

Implements and building materials (with the exception of timber, which is good and moderate in price) are excessively costly in Honolulu. The demand for, and sale of, articles required for the equipment of ships have greatly diminished.

Probably material for repair of arms, equipments, and munitions of troops could be obtained with difficulty, or not at all.

*Water and lighting.*—Honolulu has an abundant supply of excellent water—pure, free from limestone or alkali, soft, and adapted to all the uses of the city. It is brought from reservoirs at the upper end of the lovely Nuuanu valley, and conveyed by pipes through the business and principal residence districts. The city is lighted by electricity, the power for the generation of which is derived from the reservoirs referred to. Both the water and lighting systems are controlled by the government.

*Coal.*—Welsh or Australian coal of good quality can be obtained from European firms. About 15,000 tons is the quantity generally kept in stock.

*Climate.*—The climate of Honolulu is generally very pleasant and healthful, especially when the northeast trade wind prevails. The southerly and southwesterly winds are called by the natives the “sick winds,” because they are followed by small ailments, gastric maladies, and intermittent fevers, as is the case with the sirocco in Europe.

The following table \* gives meteorological observations taken at Honolulu, 1876:

MONTHS.	Mean thermometer.		Rain days.	Prevailing winds.
	Noon.	Midnight.		
January .....	78	70	16	NE. force 8 maximum.
February .....	78	69	10	NE. “ 3 average.
March .....	75	72	15	S. “ 3, calm at night.
April .....	77	71	15	NE. “ 4, light at night.
May .....	79	72	11	NE. “ 4.
June .....	80	73	5	NE. “ 3.
July .....	80	75	13	NE., calm at night.
August .....	81½	75	15	NE.
September .....	81	75	5	NE., 21 days. SE., 9 days.

\* Pacific Islands. Sailing Directions. Admiralty.



The barometer generally falls below 30 during southerly winds.

*Population.*—Honolulu has a population of twenty-three or twenty-four thousand, of various nationalities, consisting principally of whites, natives, Chinese, and Portuguese. Of these the whites are the controlling element in commercial, manufacturing, and general affairs, though there are several business houses in the hands of the Chinese. The Portuguese are chiefly engaged in manual labor.

The most intelligent class of Hawaiians are employed in government or commercial positions; of the lower classes of the natives, some are laborers; others exist by fishing, farming, and various occupations.

Of the whites, Americans or those of American descent largely predominate in numbers and influence, though those of German and British extraction are very prominent.

*Horses, carriages, etc.*—Hacks are very common in Honolulu. They are stationed at the corners of all the main thoroughfares, and the fare to any part of the city is 25 cents. The horses in use are said to be superior to those of many large cities. There are four livery stables, well equipped with saddle and carriage animals.

*Hotels.*—The Royal Hawaiian has accommodations for one hundred and fifty guests, electric lights, electric bells, water from artesian wells; Eagle hotel; Arlington; Waikiki Villa, at Waikiki, three miles from Honolulu, connected by tram cars from Honolulu.

*Tram cars.*—About twelve or fourteen miles of tram-car lines exist. These cars are drawn by mules or horses. The cars are of American make.

*Telephones.*—There is said to be an excellent system of telephonic communication; two companies; rates low; thirteen hundred telephones in use.

*Public buildings.*—Iolani Palace, in King street, said to have cost \$500,000.

Aliiolani Hall, the main government building, in which the legislature meets.

The Queen's Hospital, intended for the relief of afflicted Hawaiians of both sexes, gratis.

The Opera House, seating capacity one thousand.

The Lunalilo Home, a home for aged Hawaiians.

The Insane Asylum, from fifty to seventy-five inmates.

The Oahu Jail. Prisoners are required to do road work and other labor in and around Honolulu.

The Fish Market.

The Royal Mausoleum.

Honolulu Free Library, contains ten thousand volumes, on general subjects.

Young Men's Christian Association building.

Post Office building.

Police Station House for the reception of petty offenders.

*Current publications.*—Pacific Commercial Advertiser, frequency of publication unknown.

The Hawaiian Gazette, a weekly publication.

The Kuokoa, a weekly publication.

The Bulletin, an evening daily.

Ka Leo, native, daily and weekly.

Holomua, native, weekly.

Elele, native, weekly.

*Monthly publications.*—The Friend, The Anglican Churchman, The Planter's Monthly, The Paradise of the Pacific.

A Tourist's Guide is issued annually.

The Hawaiian Annual.

The Hawaiian Gazette Publishing Company possesses a very complete printing establishment.



*Manufacturing.*—Honolulu Iron Works, incorporated 1877. Number of hands employed, usually about two hundred. This institution is said to be equipped with excellent appliances in all its departments.

*Honolulu Steam Rice Mills.*—Large quantities of rice milled for home and foreign use.

*Hawaiian Carriage Manufacturing Company.*—Manufacture to order and attend to all kinds of repairing; deal in and keep on hand wagonmakers' supplies.

*Hopper's Planing Mill and Iron Works.*—Extensive plant, said to execute all kinds of work in wood and iron.

*Enterprise Planing Mill.*—Sash, doors, etc.

*Lucas Bros.*—Sash, doors, etc.

*Hawaiian Gazette.*—Bookbinding, etc.

*Press Publishing Company.*—Well equipped printing house.

*Tahiti Lemonade Works.*—For manufacture of all kinds of aerated waters.

Another establishment of the same kind.

The usual number of blacksmith and wagon shops, cooperages, etc.

*Banking houses.*—Bishop & Co.; Claus Spreckels & Co., whose California correspondent is the Anglo-California bank.

The mercantile houses are numerous.

#### CITIES OF OAHU (OTHER THAN HONOLULU).

*Kanehoe*, in the Kulau district, the principal place on its side of the island, situated near Waialai harbor, just beneath the Pali, back of Honolulu. No details of settlement. The climate here is cooler by a few degrees than on the leeward side, and frequent showers keep up the verdure.

*Waialua*, a large village, lies at the northern end of the plain which separates the two ranges of mountains. No details.

*Waianae*, nearly in the middle of the southwest coast of the island, a village lying at the base of the mountains in a narrow valley, fertile and cultivated. The shore here forms a small sandy bay, and on the southern side, between two high rocky precipices, in a grove of cocoanut trees, stands the village.

*Pearl City.*—Situated on the south of the island, is a large, irregularly-shaped lagoon or inlet, greatly cut up by projecting points and islands; this is Puuloa river and Pearl Lochs, where the United States Government has acquired certain rights.\* On the west side of the channel lies Puuloa village, in the neighborhood of which are large salt works. Along the inshore side of the Pearl Lochs, is a strip of very fertile land of variable breadth, part of which is under cultivation; behind, the land rises gradually to the Ewa plain.

Pearl City is said to be one of the pleasantest spots on the island, made accessible by the building of the Oahu railroad. It is situated in the midst of a highly productive and fertile district, twelve miles distant from Honolulu, and is now a beautiful town, with an abundant supply of pure artesian water, with wide streets, a substantial station, and several modern residences already built, and with improvements going on as rapidly as a large force of workmen can push them to completion.

The Oahu Land & Railroad Company founded the town.

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\* In 1887 a treaty between Hawaii and the United States was made which agreed that, on condition of the remission of duties on certain articles of Hawaiian produce, the United States was ceded the exclusive right to establish and fortify a naval station in the Hawaiian islands. Pearl harbor was designated as the station.

In 1889 an enlargement of the treaty provisions, so as to confer special advantages upon both parties, was proposed by the United States. It was suggested that the cession of a naval station be perpetual as well as exclusive. Another provision was proposed, viz., to allow the United States to land troops in Hawaii whenever necessary to preserve order. These provisions have not so far been taken advantage of by the United States.

*Water supply.*—Pearl City is said to have facilities for supplying 10,000 inhabitants. There is now an artesian well which flows to a height of twenty-eight feet, and has a capacity, when pumped, of two million gallons per day. The water from this well will be pumped into a reservoir one hundred feet high, and be used to supply the peninsula.

There is another reservoir on the more elevated ground, two hundred feet above sea level, with a capacity of one and a half million of gallons, which can be increased to sixteen million as soon as necessary. This is supplied from mountain streams.

Pearl City consists of 2,200 acres of land, which was owned in fee simple by the Oahu Railroad & Land Company, 18,000 acres adjoining which is held by the same company under a fifty-year lease, and is being sublet for fruit-growing purposes. Three companies have recently been incorporated, two of them with a capital of \$30,000 each, and have rented a choice portion of this land, which will be planted principally in bananas and pineapples.

The 2,200 acres which the town proper comprises, includes the whole of the peninsula extending into the harbor, and the lots on the mainland, the latter of which are on a gradual slope of land inclining toward the mountains.

The site of Pearl City has long been a favorite spot where boating, bathing, and fishing can be enjoyed under the most favorable circumstances. A good breeze is always blowing from the ocean. The temperature of the water is perfect for bathing all the year round.\*

*Diamond Hill.*—About three and one-half miles southeast of Honolulu; a signal station for incoming vessels.

*Waikiki.*—A village lying about one mile northwest of Diamond Hill. There is no anchorage in front of it.

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## ISLAND OF HAWAII. (Map D.)

In shape the island of Hawaii is a wide triangle, sides eighty-five, seventy-five, and sixty-five geographical miles. Almost the whole surface is a gentle slope from one of the four volcanic mountains: Mauna Kea, on north, 13,805 feet, the highest peak in the Pacific ocean; Mauna Loa, on south, 13,600 feet; Mauna Hualalai, on west, 8,275 feet; and Mauna Kohala, on northwest 5,505 feet. The slopes on the west are so gentle that the base of terminal cones may be reached on horseback. In the Mahukona district the face of the country is regular, ascending gradually from coast to summit of highland.

The plain lying between the mountains of Hawaii is many square miles in extent.

*Coast.*—The south point of the island of Hawaii, called Ka Lae, is very low, rising with a gentle slope to the hills behind. The southern side of the island is much drier, and the country more open and free from forest than on the north, where, indeed, the forests are very dense.

From the south to Kumukahi, the east point of Hawaii, there are no bays or good anchorages.† The coast is exposed to wind and swell.

From the east point almost to Hilo bay the coast is precipitous, and against it the sea continually beats with violence; thence for thirty miles the shore is remarkable for the number of streams (eighty-five), running at the bottom of ravines, eighteen hundred to two thousand feet deep, which furrow the side of Mauna Kea, and render travel along its coast very laborious. Ridges between the ravines, terminating at the sea in precipices from one hundred to five hundred feet high, oblige the road to run inland. The northeastern coast is very generally steep and rocky, though here and there are small bays or breaks in the cliffs where the natives are able to land their canoes.

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\*Pacific Coast Commercial Record.

† Except the small bay at Kaalualu.



*Upolu point* is the northern extremity of the island. Behind it lies an extensive plain in good state of cultivation, rising gradually to the foot of the mountains.

From the north point of the island, the west coast is at first barren owing to want of rain; the face of the country is regular, ascending gradually from the coast to the summit of high land in the interior. From Kawaihe bay to the village of Kailua there is no anchorage or shelter.

*Kealakekua bay*, where stands the monument to Captain Cook, R. N., is the best anchorage of the south coast; but south of it lies a rugged lava-covered shore, where large masses of rock, miles in extent, often form perpendicular cliffs against which the sea beats with fury.

This formation extends half a mile into the interior, and as the distance from the sea increases, the soil becomes richer and more productive. The face of the country within this rocky barrier is rough and covered with blocks of lava, more or less decomposed, but at a distance of two miles from the coast begins to be well covered with woods of various kinds, which are rendered almost impassable by an undergrowth of vines and ferns.

The interior of the island of Hawaii is a strange blending of fertility and desolation. In the valleys are often found regions of extraordinary richness, that are reached only by crossing arid districts strewn with rocks and boulders, or overlaid by recent streams of lava still uncovered by soil.

Barren wastes are succeeded by vegetation so dense as to be almost impenetrable, or by pleasant grass lands lying near forests of the peculiar koa tree, which is characteristic of this island. The trees in the koa forests frequently grow close together from a soil carpeted with long rich grass; they are large in size, of hard, dark wood, and were formerly greatly used to make the canoes of the islanders.

The density of the forests is proportional to the amount of rainfall, which upon the windward side of Hawaii is phenomenally great.\*

On Hawaii is found a peculiar grass, said to have been brought to the island by accident. In its green state it is hardly fit for pasture. Cattle and horses eat it, but it apparently affords very little nourishment, though more when cured. So dense and high is this grass that it is difficult to ride through it. Another, and perhaps the best variety of grass, comes from Mexico; it is called, locally, *maniania* grass, and wherever it grows forms the richest and most velvety sward imaginable. It is highly nutritious and animals are very fond of it.

Such being the character of the interior of the island, roads are in general bad, and communication difficult.

#### CITIES, TOWNS, AND PORTS, HAWAII.

*Hilo*.—Hilo, or Byron bay, on the northeast side of Hawaii, is the only anchorage on the northeast coast; the bay is about seven and a half miles wide and three miles deep; it is fully exposed to the northeast trade wind.

The scene which the island presents as viewed from the anchorage in Hilo bay is novel and beautiful; the shores are shielded with extensive groves of cocoanut and bread fruit trees, interspersed with plantations of sugar cane, through which numerous streams are seen hurrying to the ocean; to this belt succeeds a region some miles in width, free from woods, but clothed in verdure, while beyond is a wider belt of forest, whose trees, as they rise higher and higher from the sea, change their character from the vegetation of the tropics to that of the polar regions. Above all tower the snow-capped summits of the mountains.†

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\* Major Dutton states that this may attain to more than 300 inches annually in the interior of Hawaii; 240 inches have been measured at Hilo.

† Pacific Islands, Vol. II, Hydrographic Office. Admiralty.

On the coast of the bay near Cocoanut island lie the creek and village of Whyeatea, where landing may be effected in all weathers. There are two piers to the northward of the entrance of the creek, alongside the northernmost of which, ships drawing fifteen feet of water can lie. The shore then turns westward along a sandy beach for nearly one mile to the bottom of the bay, where the town of Hilo is situated.

Hilo is the principal town in Hawaii, and ranks next to Honolulu in importance and population. The town may be easily recognized from the seaward by the tall white square towers of the Roman Catholic church, and the pointed white spire of the Protestant church. There are also several other large buildings, both public and private, such as a court house, schools, governor's house, stores, etc.

There are several sugar plantations in the vicinity of Hilo on which the town is mainly dependent for prosperity.

Besides sugar and molasses, Hilo exports hides, tallow, goatskins, arrowroot, rice, and a small amount of coffee.

As before stated, the rainfall here is very great, and accounts for the luxuriant verdure of the district.

The Hawaiian government steam vessels communicate with Hilo from Honolulu once a week, and schooners ply constantly between the two ports. (See Communications and Appendix 1.)

*Supplies.*—Supplies of nearly all descriptions can be obtained: beef, ten cents per pound; bread, about nine cents, and vegetables at six cents.

A small pier has been built in front of the town, but in 1888 the sand had washed up and closed it as a landing place. The only landing place is at Whyeatea.

Close to the west of the town is Waterfall creek, the mouth of Wailuku river, and about two miles from the entrance is Cocoanut point. There is a good watering place up this creek which is generally easy of access, except when the wind is blowing hard from seaward; on such occasions the surf is high, and the rocky bar at the entrance becomes dangerous for boats to pass. The water is excellent and abundant.

Hilo bay is a safe anchorage, and next to Honolulu may be considered the best in the Hawaiian islands. With a strong trade wind there is a slight sea, unpleasant enough for boats but not sufficient to endanger the safety of a ship. The westerly wind, which is felt most, seldom blows strongly.

A well sheltered anchorage can be picked up anywhere under the lee of Blonde reef in from five to seven fathoms. A vessel drawing fifteen feet or less may anchor so as to be quite under the lee of Cocoanut island and Keo Kea point.

*Mahukona.*—A small village with anchorage off it about six miles south of Upolu point. The place is becoming important, through the energy of a Mr. Wilder, who has made a most convenient landing place, and constructed a railway fifteen miles long to bring sugar from the Kohala district round the north end of the island.

The cargo boats lay along the side of the pier and are laden and cleared very quickly by means of a steam "crab" which works a truck up and down the incline.

There is no water in the place. All the fresh water has to be brought from Kohala by train. An attempt to obtain artesian water failed.

The anchorage is indifferent, and with winds to the westward of north or south would be untenable. Freight is disembarked and shipped at night, during the greater part of the year.

The soil along the shore is barren for three or four miles inland owing to the want of rain. The face of the country is regular, ascending gradually from the coast to the summit of the high land.



*Kawaihae village* is situated in a grove of cocoanut trees, just behind a sandy point near the center of the bay of the same name. The village consists (1891) of a general store, two or three houses, and several huts along the shore. In front of the village is a pier for boats.

So much of the soil of this district as lies along the coast, though rich, is badly watered; seven or eight miles inland from Kawaihae bay it becomes exceedingly rocky and barren.

The climate is upon the whole unpleasant, especially at Waimea about nine miles eastward of Kawaihae, in consequence of the exceedingly strong trade wind, which brings with it a mist toward sunset. This wind rushes furiously down between the mountains which bound the valley of Waimea and becomes very dangerous to the shipping in the bay. It is called by the natives *mumuku*, and is foretold by an illuminated streak seen far inland, believed to be caused by the reflection of the twilight on the mist that always accompanies the *mumuku*.

The principal exports of the district are hides, tallow, and beef.

On approaching the anchorage a good landmark is a conspicuous mound situated a short distance south of the village. Another conspicuous landmark is a white tomb in the form of a pyramid.

There is a coral reef in front of the village, but a boat passage exists around the north end and close to the shore, where landing is easy.

With strong westerly winds the anchorage would be very exposed and unsafe. The sea breeze from the westward lasts all day, and the northeast trade or land breeze sometimes blows strong all night.

*Supplies.*—Beef may be obtained here at six cents a pound, potatoes are abundant, and plenty of fish may be caught with the seine.

The watering place, which is in a small sandy bay, is only a pool of rain water collected in a hole, and would require five hundred feet of hose to pump into a boat. In the summer the water becomes somewhat stagnant and unfit for drinking; in winter more rain falls, and it then becomes a stream.

*Settlement—Kailua bay.*—The bay affords a good anchorage at most seasons of the year. (In 1841 the residence of the governor of Hawaii island was established here, and great advances were being made in the civilized arts and industries). There is a most convenient landing place on a sandy beach on the west side of the bay, formed by the jutting out of two points, between which is a small cove protected from the surf by rocks.

Rain seldom falls here except in showers, and a rainy day once in the year is looked upon as remarkable. This, together with the absence of all dew, prevents the existence of much cultivation. There grows, nevertheless, a coarse vegetation sufficient to pasture a few hundred goats, and a mile back from the shore the surface is covered with herbage which maintains cattle, etc.; two miles in the interior there is sufficient moisture to keep up a constant verdure.

The temperature is mild and equable. During the winter the thermometer ranges from 64° to 85°; summer, 68° to 86°.

The prevailing winds are the land and sea breezes, which are very regular; the most severe gales are those from the southwest, which last from a few hours to two or three days, and render anchorage unsafe.

On approaching Kailua bay, the town may be recognized by the two churches and the cocoanut groves on the shore to the westward.

There is a most convenient landing place, as noted above.

*Kona.*—Settlement near Kealakekua bay, situated west side Hawaii, best anchorage on that coast. Climate mild, 62° to 76° in winter, 70° to 86° in summer. Strong winds are seldom felt. During day, cool sea breeze; during night, land breeze. It was at Kealakekua bay that Captain Cook was killed (1779). On west of Kanwalda cove is a village of same name, where

the monument to Cook now stands. The shore all around the bay is rocky, making landing dangerous when there is a swell setting in, except at Kealakekua village. Here there is a fine sandy beach, with burying place at one extremity and a small well of fresh water at the other. The bay is easy of access; but anchorage is not good, owing to the great depth of water and foul bottom. Kanwalda cove, though exposed to winds south and southwest, may be considered safe anchorage except in winter.

Kona is a village a few miles inland, and is considered one of the most healthy spots in the whole group, and especially beneficial to people suffering from weakness or disease of lungs or chest. It is said that many visitors come here from California to pass the winter, and there are one or two commodious boarding houses for their accommodation.

From the landing place, about half a cable southwest of Cook's monument, there is a good road leading to Kona.

*Supplies.*—Beef, fowls, sweet potatoes, and plantains can be obtained in Kealakekua; also water at Napupu, a village south of Kealakekua; but the tank is falling to decay, and the water is brackish in all wells in the vicinity of Kanwalda cove.

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#### ISLAND OF MAUI. (Map E.)

The island of Maui lies northwest of Hawaii. The channel which separates them has a width of twenty-eight miles.

The island is forty-eight miles long in a west-by-north and east-by-south direction; it is divided into two oval-shaped peninsulas, connected by a low isthmus six miles across, and only a few feet higher than the beach.

The whole island, which is volcanic, was probably produced by the action of the two adjacent volcanoes.

*Coast.*—The southwest point of Maui, cape Hanamanioa, is formed by rugged, craggy rocks. From here along the coast twenty-five miles to Alau islet the whole shore is rugged, and offers no anchorage or shelter. From seaward the land appears to ascend abruptly; it is densely covered with trees and vegetation, while here and there a few habitations appear. Alau islet, lying off the east coast of Maui, is very small. Kauiki head, the eastern point of Maui, is an old crater which is connected by a low spit to the mainland, and at a distance appears like an island.

Near this peninsula lies Hana harbor, from which a coast that affords no shelter extends for thirty-one miles.

The north coast of East Maui is a succession of deep ravines, which gradually diminish in breadth as they ascend and are finally lost in the flanks of the mountains; traveling along the coast, in consequence, becomes almost impossible. Cascades several hundred feet in height, but having little volume of water, are seen falling into these ravines.

The east coast of West Maui is an abrupt precipice several hundred feet in height, terminating at Kahakuloa point, the northern extremity of the island. The southern side of West Maui has a forbidding appearance. The shores, however, are not so steep and rocky as elsewhere, and have generally a sandy beach.

Off Makena, near the southwest extremity of the island, lies a small barren islet called Molokini, only visited by fishermen who dry their nets on its barren surface.

*Interior.*—The eastern peninsula of Maui, the larger of the two, is lofty; but though the mountains are often seen above the clouds, they are never covered with snow.

*East Maui* rises in an unbroken mountain.



East Maui, although mountainous, has much cultivated land; and the rich volcanic soil of the Kula district, on the southwest side of the island, raises abundant crops of potatoes. Wheat and other grains are also cultivated.

*West Maui* has many sharp peaks and ridges, which are divided by deep valleys, descending towards the sea, and opening out into sloping plains of considerable extent in the north and south sides.

The highest peak of West Maui is Mauna Ika, 6,130 feet.

The connecting isthmus consists of sand, which is constantly shifting and is thrown up in dunes; this region is naturally dry, but during nine months of the year affords fine grazing, feeding large herds of cattle that are mostly owned by foreigners.

The productions of Maui are those of the other islands, with the addition of a few fruits, such as grapes, etc.

The highest point of Maui, named Kolakole, is 10,030 feet above the sea. It is destitute of trees to the height of about 2,000 feet; then succeeds a belt of forest to the height of about 6,500 feet, and again the summit is bare.

The crater of Haleakala is a deep gorge, open at the north and east, forming a kind of elbow. The inside is entirely bare of vegetation. The natives have no tradition of an eruption.

Though arid and sandy in appearance, the soil of the isthmus connecting the two parts of the island is good, deep, and exceedingly fertile where irrigation has been introduced. At Spreckelsville, in the northern part of the peninsula, lie the largest sugar estates of the island.

#### CITIES, TOWNS, AND PORTS, MAUI.

*Hana harbor*.—The anchorage is well protected from the wind and sea, and is very convenient. There is a town here, details unknown.

*Kahului harbor*.—Situated between the coral reefs on the northern side of the low isthmus joining the two peninsulas. Channels about three and a half cables wide, four cables deep, fully exposed to the northward.

*Kahului*.—An important place for exporting the produce of the northern part of Maui; there are railways connecting it with Wailuku to the westward, and Spreckelsville and Haiku on the east. (See Communications.)

There was being built, in 1881, out from the shore near the customhouse, a jetty which it was proposed to extend as far as the edge of the reef.

Anchorage may be obtained in from two and a half to seven fathoms.

*Wailuku*.—A flourishing village about two miles northwest of Kahului. Here there is a female seminary occupying an extensive range of coral buildings, beautifully situated on an inclined plane, with high precipices behind. It is considered one of the best organized establishments in the Hawaiian islands.

*Lahaina*.—A town situated on the west side of West Maui, and at one time a flourishing place much frequented by whaling vessels for refitting and for obtaining supplies, but now only visited by vessels loading with sugar, which is grown on the estates in the vicinity.

The town is built along the beach for a distance of three-quarters of a mile. It is principally composed of grass houses situated as near the beach as possible. It has one principal street, with a few others at right angles to it. From seaward the town may be recognized by some conspicuous buildings, especially Government House, which is near the beach and has a tall flagstaff before it. The seminary of Lahainaluna is situated on the side of the mountain above the town.

Off the town there is an open roadstead which is completely sheltered from the trade wind by the high land of Maui, but the holding ground is reported indifferent

*Supplies.*—Supplies of all sorts can be obtained here—beef, vegetables, fruit, and water in abundance.

*Landing.*—The landing place is at a small pier, extending from the lighthouse, and protected by a breakwater.

The tide is irregular, generally running northwest sixteen hours out of the twenty-four.

*Patoa.*—A roadstead (so called by Vancouver), situated on the southern side of West Maui. "The anchorage at Patoa is abreast of the easternmost of these valleys, which appeared fruitful and well cultivated."

*Kamalalaea bay settlements.*—The bay is on the west side of Maui, lying between two peninsulas, the western side formed by rocky cliffs and precipices. Nearly in the middle of this side is a village called Mackerrey, off which is an anchorage in seven fathoms. No details known.

*Maalaea.*—Near the head of Kamalalaea bay, in the northeast corner, is the small village of Maalaea. Here there are some houses for storing sugar. Besides sugar there is a great quantity of wheat, maize, and potatoes grown in this district, and supplies of fresh provisions are obtained in plenty from Wailuku, which is about six miles distant.

The anchorage off this place is not good, as the trade wind blows across the low isthmus in heavy gusts, and communication with the shore by boats is sometimes interrupted.

There is a small pier here for loading schooners, and boats can always go alongside, the channel leading to the landing place being about twenty yards wide between two coral reefs.

*Makena, or Makee's landing.*—A small indentation in the west coast of East Maui, near the southwestern extremity of the island. It derives the latter name from a planter whose estate is situated on the side of Mauna Haleakala, on a plateau two thousand feet above the sea and about five miles east of the landing place. Near the landing are a stone church and several houses. The anchorage is exposed to the heavy squalls which occasionally blow over the low isthmus in the center of Maui, and landing is at times impracticable for ships' boats owing to the heavy surf. The holding ground is not good.

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## ISLAND OF KAUAI. (Map F.)

Kauai lies sixty-four miles west by north of Oahu, and is separated from it by the Kaieie Waho channel. This island is of volcanic formation, somewhat circular in shape, twenty-five miles long and twenty-two miles wide, and rises in the center to a peak five thousand feet in height.

*Coast.*—From the seaward the northeast and northwest sides appear broken and rugged, but to the south the land is more even; the hills rise with a gentle slope from the shore, and at some distance back are covered with woods.

The southern point of the island is a bold barren rocky headland, falling perpendicularly into the sea.

*Ninini point*, north point of Nawiliwili harbor, is low level grassy land, sprinkled with volcanic boulders extending from a range of low hills that stretch along the coast at a short distance from the beach, which extends northward to Wailua.

Along the coast from Wailua, sugar cane appears to be cultivated in large quantities, especially in the vicinity of Wailua and Kanala point, where there are several factories.

From this point to Hanalei bay are several small villages scattered along the coast near the mouths of mountain streams which are closed by sand bars. The land near the sea is flat and very fertile, but soon rises to the mountains behind. The rivers as well as the sea abound in fish.

The northwest coast of Kauai, forming the district Na Pali, has a very rugged appearance, rising to lofty abrupt cliffs that jut out into a variety of steep rocky points destitute of



both soil and verdure; but terminating nearly in uniform even summits, on which, in the valleys or chasms between them, are several patches of green. Here and there a stream running from the lofty mountains behind finds its way to the ocean.

*Mana point*, the western extremity of Kauai, is a long, low sand spit, commencing at the foot of a high range of mountains, and from it a sandy plain extends to the town of Waimea. This plain is from a quarter to a mile wide and a hundred and fifty feet above the sea, whence it rises gradually to the mountains.

It has a sunburnt appearance and is destitute of trees, except on the low grounds where the cocoanut thrives. The sea here abounds in fish. Between Waimea and Kaloa bay, the south point of Kauai, extends a series of sunburnt hills and barren plains, sloping gradually to the shore from the mountains, and here and there intersected by ravines. There is no cultivation, and the soil only produces a kind of coarse grass quite unfit for pasture.

*Interior.*—The island of Kauai is considered one of the most pleasant of the group. Portions of it appear better adapted to agriculture than the other islands, and the coffee and sugar plantations on the weather side, which is well watered with streams and by frequent rains, are very productive; but the lee side is dry and adapted to cultivation only in valleys.

#### CITIES, TOWNS, AND PORTS, KAUAI.

*Nawiliwili bay village.*—The harbor of Nawiliwili is a small cove on the southeast side of the island, at the head of a bay of this name. The greater part of the harbor is blocked by shoals and reefs.

At Nawiliwili bay is a large village; the soil in the vicinity is rich, producing sugar cane, taro, beans, sweet potatoes, etc.

There is a small pier in the northwest corner of the harbor, where landing may be easily effected; but the pier should be approached with caution, as a reef extends from the shore to the southward of it for two cables in an easterly direction.

The local mail steamer runs to this point. (See Communications.)

*Wailua.*—Formerly a place of some importance, five and a half miles from Ninini point, situated on a small river of the same name, in a barren sandy spot, surrounded by an extremely fertile district. The river, in common with the others along this coast, is closed at the mouth with sand bars, but inside is deep and navigable by canoes for several miles.

*Coast villages.*—From Kanala point, north and west, fourteen miles to Hanalei bay, there are several small villages scattered along the coast, near the mouths of mountain streams closed by sand bars.

*Hanalei.*—Situated near the bottom of a bay of this name.

Anchorage ground in the bay is spacious in fine weather, but there is only room for about three vessels in bad weather under the lee of the reef near the eastern point of the bay.

A landing is generally effected inside the mouth of the river.

*Supplies.*—Supplies are plentiful—beef, vegetables, and fruits may be obtained in abundance. Water may be procured by sending boats into the river, which is easy of access in fine weather, and a short distance from the mouth the water is perfectly fresh. The town is very picturesquely placed; the mountains rise to a height of from three to four thousand feet, and are clothed with verdure from base to summit, with numerous rills running down their precipitous sides.

In front of the town is a good beach where great quantities of fish may be caught with a seine.

The district derives its name from the numerous rainbows formed by passing showers. The rains are so frequent as to clothe the country in perpetual green.

On the eastern side of the entrance is a conspicuous dark bluff-head, with two sandy beaches a short distance to the eastward.

A little way to the southward of this bluff is the mouth of a small river, in front of which is a bar that may be crossed by boats at half flood; inside, the bar carries a depth of from one to three quarters of a fathom and is navigable for several miles for boats drawing three feet. About four cables from the mouth of the river, on the northern bank, is a large farm, called "Charlton farm," owned by the English consul who keeps a large number of cattle of good breed.

*Waimea village.*—Situated on Waimea bay, south west coast, placed at the mouth of river of the same name, which runs about fifteen miles inland. At one time a populous native town, but now (1891) only a small village of little importance. It contains a church.

Boats may ascend the river for about three-quarters of a mile; this is the only water here that is not brackish. A little to the eastward of the village a shoal projects. The trade winds, deflected by the mountains, often raise a surf which renders landing at times very unpleasant, sometimes impracticable.

Waimea bay should be approached with caution, as reefs extend to the southward. There is a railroad from Waimea to Kekaha. No details known.

*Kaloa bay village.*—About one mile west of the south point of Kauai is a slight indentation of the coast, where there is a considerable village called Kaloa, off which anchorage may be obtained but in a very exposed position.

The country around the village of Kaloa is much broken by hills and inactive craters; but the soil is good, though dry and very stony, and is capable of cultivation in many places. There is a sugar plantation here, and there are several large cattle ranches in the vicinity.

The village may be recognized by many high buildings and two churches; it extends from the beach to a distance of two miles up the slope of a hill. Between the village and Mekanuena, the southern extremity of the island, there is a low point running out into a rocky ledge that somewhat protects the anchorage.

There is a good landing place at Kaloa, in a small cove protected by a reef extending about one cable from shore; an artificial creek has been made at the head of this cove, with sufficient space for one boat to enter.

*Supplies.*—Supplies of beef, vegetables, and fruit may be obtained in abundance.

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## ISLAND OF MOLOKAI. (Chart B.)

Molokai is situated north of Lanai, from which it is separated by Pailolo channel, six and a half miles wide.

It is apparently formed by a chain of volcanic mountains about forty miles long and seven miles broad. The mountains are high and broken by deep ravines and water courses; the sides are clothed with verdure and ornamented with shrubs and trees.

*Coast.*—Lae o Ka Laau, the southwest extremity of Molokai, is a low black point. On the south side of the island are several small harbors, the best of which is Kaunakakai, midway between the two extremes.

From this point to the southeast extremity of the island the distance by the coast is about twenty-one miles, thence northward to Kalaua, the northeast point, about two miles.

Some sixteen miles from Kalaua, and on a peninsula projecting about two miles into the sea, is placed the leper settlement of the Hawaiian islands.

*Interior.*—One-third of the island of Molokai, towards the west end, is a barren waste not susceptible of cultivation except in the rainy season. It has in consequence but few inhabitants, who are engaged mostly in fishing.



The eastern two-thirds is almost one entire mountain, rising gradually from the south until it attains an elevation of two thousand five hundred feet, while on the north it is almost perpendicular. On the south side there is a narrow strip of land not exceeding a quarter of a mile in width, where dwell the greater part of the population. The soil is very rich, but owing to the want of moisture few plants will thrive even here. Resort is therefore had to the uplands, which are found to be susceptible of the highest degree of cultivation.

#### CITIES, TOWNS, AND PORTS, MOLOKAI.

*Kaunakakai*.—A town or village situated on the south side of Molokai, midway between the extremes. There are outer and inner anchorages; former not good, latter limited.

No supplies are to be obtained at Kaunakakai. No details of town known.

*Kalañao*.—Situated near the center of the north coast of Molokai, at the base of very precipitous mountains. The leper establishment was erected here about 1865. The anchorage is to the southward of a low point, extending from the foot of two remarkable, steep mountains. It can not be considered safe, being exposed to a heavy swell; landing at Kalañao, always difficult, is at times dangerous.

*Supplies*.—No supplies can be obtained.

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#### ISLAND OF LANAI, OR RANAI. (Chart B.)

Lies sixteen miles northwest of Kahului, and is separated from West Maui by Auau channel, seven and a half miles wide. Lanai is a dome-shaped island about seventeen miles long and nine miles broad. Large fissures are visible on its sides.

The center of this island is much more elevated than Kahului, but is neither so high nor so broken as any of the other islands.

Great part of it is barren, and the island in general suffers much from the long droughts which prevail. The ravines and glens, notwithstanding, are filled with thickets of small trees.

The island is volcanic; the soil shallow and by no means fertile. The shores abound with shellfish.

Sheep in large numbers, it is said, are pastured here.

#### CITIES, TOWNS, AND PORTS, LANAI.

No towns noted; probably none exist.

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#### ISLAND NIIHAU. (Chart B.)

The island lies seventeen miles west southwest of Kauai, from which it is separated by Kumukahi channel. It is about twenty miles long by seven miles broad.

This island is mostly low land, except on the eastern side, where it rises directly from the sea to a height of fifteen hundred feet, and is rocky and unfit for cultivation. On the western side is a level plain from two to four miles wide, where the natives cultivate yams, fruits, sweet potatoes, etc. The soil being dry, the yams grow to great size. The natives are few in number and very poor; they live almost entirely on the western side of the island.

Of late years Niihau has been used as a sheep run, and in 1875 there were said to be about seventy thousand sheep on the island.

The eastern shore of Niihau is rocky and wholly destitute of shelter, but on the western shore there are several open roadsteads.

## CITIES, TOWNS, AND PORTS, NIIHAU.

*Yam bay.*—An open roadstead about a mile and a half south of Kona point, where, in fine weather, anchorage may be obtained. There is only one place in the bay where boats can effect a landing in safety when the sea sets in, a common occurrence; this is on the western side behind a small reef of rocks that lies a little way off the beach; even here it is necessary to guard against sunken rocks. No inhabitants noted.

*Cook anchorage.*—On the southwest of Niihau, about four miles south of Kona point; is exposed to the heavy northwesterly swell; the bottom is composed of large rocks, with patches of sand.

Near the beach are a few huts, a church, and a derrick for loading and unloading boats.

*Landing.*—The landing place is protected by some rocks forming a breakwater in the north-east part of the bay, and is situated just inside a lava patch which from seaward appears like a point. Landing can be effected easily in moderate weather, but with a heavy swell it is impracticable.

*Supplies.*—Whalers call here occasionally for fresh meat, but the sheep being bred for wool only, very little meat can be procured; and only a limited quantity of vegetables and fruit.

Fresh water can only be procured during the rainy season, when the water courses are full; at other times of the year there is no water but what the natives have collected in wells in the rock for their own use, these wells are chiefly near the south end of the island.

CAUTION.—As the rollers set in with but little warning at Cook anchorage, sailing vessels should proceed to sea on first indications of them. These rollers generally last from three to four days.

## ISLAND OF KAHULAUI. (Chart B.)

Called also Tahurowa, separated from East Maui by Alalakeiki channel six miles wide, is about eleven miles in length and eight miles wide.

It is low and almost destitute of every kind of shrub or verdure, excepting a species of coarse grass. The rocks of which it is formed are volcanic, but nothing is known of any active or extinct craters on the island.

At one time this island was used as a penal settlement; but it is now chiefly used as a sheep run, the soil of decomposed lava being of too poor a quality for cultivation.

## CITIES, TOWNS, AND PORTS, KAHULAUI.

No towns noted; probably none exist.

## ISLAND OF KAULA. (Chart B.)

This island, called also Tahura, lies seventeen miles southwest one-half west from Niihau. It is a small elevated barren rock, destitute of vegetation, and uninhabited. It is visited to collect the eggs of sea birds, which abound.

## ISLAND OF LENUA. (Chart B.)

Lenua, or Egg island, lies off the north point of Niihau. It is a small rugged barren rock, apparently destitute of soil and without sign of habitation.

## ISLAND OF MOLOKINI. (Chart B.)

A small islet off the island of Maui, which see.



## COMMUNICATIONS OF THE HAWAIIAN ISLANDS.

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### RAILROADS.

There are, according to the Statesman's Year Book for 1893, fifty-six miles of railway in the islands of Hawaii, Maui, and Oahu. These roads were built principally for the transportation of produce from the interior to the seaports.

#### RAILROADS OF OAHU.

##### *Oahu railroad.*

This line extends from Honolulu nineteen miles to Ewa plantation; passing around Pearl Lochs, with a branch along the peninsula to Pearl City, and a spur extending into a quarry at Palama. Roadbed good. It is proposed to run the railroad completely around the island.

##### *Depots.*

There is an excellent depot at Honolulu; also turntable. Stations with suitable houses at intervals along the line. A fine depot, also turntable, exists at Pearl City.

##### *Wharfage.*

The company's wharf at Honolulu is sixty feet wide and two hundred feet long and is ample for present needs. Products can be unloaded directly from cars to vessels and *vice versa*.

##### *Rolling stock, etc.*

The rolling stock and equipments are of the most approved and modern style.

At the port of Waianae, in northwest portion of Oahu, there are several small railroads, in all about four or five miles, branching to plantations in the interior and along the coast. About these there are, however, no obtainable data.

#### RAILROADS OF HAWAII.

In Hawaii, from Mahukona to the Kohala district, some fifteen miles of railroad exist.

#### RAILROADS OF MAUI.

In the island of Maui a little railway of very narrow gauge now connects Wailuku and Kaluili. The railway also extends three miles further eastward to the sugar mills of the great plantation of Spreckelsville, in all thirteen miles.

(The distances between these places are given from the overland distance tables in the Hawaiian Annual for 1893.)

Data concerning gauge, quantity of rolling stock, etc., as well as reliable maps, are at present unobtainable.

#### RAILROADS OF KAUAI.

On the island of Kauai, there is (according to the Hydrographic Office chart of Waimea bay) a railroad from Waimea village to Kekaha. No details known.

## ROADS.

There are a few well constructed roads on the island of Oahu, leading from Honolulu to places of interest to tourists; but in general the roads on the island are not good, being frequently heavy with sand, and muddy in wet districts. No positive information obtainable.

## TELEGRAPHS.

There are telegraphs round the island of Oahu, as well as in Hawaii and Maui. Oahu and Hawaii are connected by telegraphic cable. Total length of telegraphs, two hundred and fifty miles.

## TELEPHONES.

Telephones are in general use in Honolulu and probably elsewhere on the islands.

## POSTAL SERVICE.

For Hawaiian Islands postal service and post offices, see Appendix I.

## INTER-ISLAND STEAMERS AND VESSELS.

There are twenty-two coasting steamers plying between the ports of the island, of which nine belong to the Inter-Island Steam Navigation company, seven to the Wilder Steamship company, and the remainder to various private owners.

There are also twenty-five sailing vessels belonging to various firms and owners.

There are, besides, two steam and six sailing merchantmen and traders of Hawaiian register plying between the islands and foreign ports.

For tonnage, class, etc., of above, see list of Hawaiian registered vessels, Appendix I.

For tables of overland distances, see Appendix II.

## LEPROSY.

In his report to the Hawaiian legislative assembly of 1884, the president of the board of health makes the assertion that "Hawaii has to meet a calamity of widespread disease \* \* At least two per cent of her entire native population is attacked by a fearful and supposed incurable malady [leprosy], of an exceptional character, that demands separation and isolation." In the same report it is shown that the appropriation of \$90,000, for the segregation and care of lepers, voted in 1882, for the biennial period closing March 31, 1884, had fallen short of the demands upon the health authorities. The Hawaiian law has provided for the strict segregation of lepers since 1865, and the district of Kalawao on Molokai, a territory of about 5,000 acres, was selected at that time for the leper settlement.

It is asserted that up to 1882 at least, the law requiring segregation was not carried out with vigor, but it is shown that under the partial enforcement of the law during sixteen years prior to June 1, 1882, 2,602 cases, an average of 162.62 cases per year, had been sent to the leper settlement. The biennial report of the president of the board of health for 1890 states that "the work of collecting and segregating lepers had been carried on with firmness and impartiality, and that the number of lepers collected and sent to Molokai for the biennial period closing March 31, 1890, was 798. Of these, two were of British and two were of American birth." The report shows that \$331,057.80 was expended by the board of health during the biennial period, and it is asserted "that the maintenance of the leper establishment is the almost bottomless pit into which more than three-fourths of the money appropriated is cast."



It is hopefully claimed, however, "that its requirements are on the wane, and judging from the most reliable information obtainable, there are but very few undoubted cases of leprosy now at large in the country, and they will come under the care of the board as rapidly as it is possible to get control of them." In proof of this it is stated that on the 31st of March, 1888, it was estimated that there were then at large throughout the kingdom 644 lepers, while at the date of the report under consideration, March 31, 1890, "according to the best information obtainable, there are \* \* \* about one hundred persons supposed to be affected by the disease, still at large who have not been before the examining board." The reasons why these suspected lepers have not been examined, are stated to be that some very bad and unmistakable cases are hiding in fastnesses of the mountains, while some mild cases change their residence so often as to baffle the efforts of the officers of the law for their arrest.

In regard to the contagious character of the disease and the precautions necessary to be taken, it is claimed by Surgeon Tyron, United States Navy,\* that the spread of the disease in the Hawaiian islands is due, or was due at that time, 1883, to the general belief that "the disease is only slightly contagious, and its treatment as such from the beginning, allowing free individual intercourse, with weak enforcement of the laws for its suppression."

That leprosy has not always been regarded by the authorities of the Hawaiian islands as eminently contagious, is shown by the following extracts from the report of the president of the board of health, to the legislative assembly of 1884. He says : "Such a characterization is entirely uncalled for, is not warranted by experienced medical opinion, and the violent and hasty segregation which it would inspire is a wrong to a suffering community." "The confirmed leper should be separated from the community, but there should be no alarm in consequence of the temporary presence in the street of a leper, or on account of any ordinary intercourse with a sufferer from the disease."

On the other hand the report of the board of health for 1890 declares in the most emphatic manner that "complete, thorough, and absolute segregation offers the only safeguard" against the ravages of leprosy. The same report asserts that if, from the time when leprosy was first recognized as an established fact in the islands, the policy of absolute segregation, had been firmly decided upon and unflinchingly pursued, \* \* \* Hawaii would be as free from leprosy to-day as any civilized nation." The report concludes with the hopeful words : "It is safe to say that if we do not relax our efforts we have seen the worst of leprosy in this country." The average leper population of the leper settlements in Molokai for the two years ending March 31, 1890, was 1,035.

A. Lutz, M. D., a specialist employed by the Hawaiian government as "government physician for the study and treatment of leprosy," reports, under date of April 1, 1890, as follows : "The infection from one person to the other furnishes probably the largest number of patients; heredity, if it really exists at all, is quite secondary, being perhaps only simulated by family infection. The influence of vaccination appears most doubtful."

From the "Sanitary Instructions for Hawaiians," by the chairman of the sanitary committee of the Hawaiian legislature, the following statement of predisposing causes of leprosy and rules to be observed, is made up :—

"Be careful that where the operation of vaccination is performed, pure vaccine is used."

"Avoid a leprous bed fellow as you would a pit of fire."

"Eat regularly and of the best obtainable food."

"Avoid dark, damp, badly ventilated rooms."

"Never lie down to repose in damp or dirty clothing, and keep the body clean."

"Nearly all the lepers come from among the poor, who have fared badly and have lodged in damp and ill ventilated huts."

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\* American Journal Medical Science, April, 1883.

"Take care of the first symptoms of leprosy. The moment numbness of feeling, or any marks or swellings that indicate leprosy are observed, a physician should be consulted."

Venereal diseases favor the attack of leprosy. "If two men, one perfectly well and clean in body, and the other diseased with venereal virus, were each brought into intimate contact with a leprous individual, the diseased man would be affected and become a leper far sooner than the sound man."

Dr. Lutz, Hawaiian government physician for the treatment and study of leprosy, was encouraged to declare, under date of April, 1890, that he believes, "we shall \* \* \* see cures, which may be attributed, not to extraordinary chance, but to our methods of treatment." It appears, however, from later reports, that the study of leprosy by specialists employed by the government was soon abandoned. Dr. Lutz resigned September, 1890, without having effected a permanent cure.

The president of the board of health reports to the legislative assembly, session of 1892, on the subject of the study of leprosy by Government specialists, as follows: "In deference to the oft-repeated requests, \* \* \* the board of health opened correspondence with the Leprosy Commission of England and with Dr. E. Arning, of Hamburg, Germany, with a view of \* \* \* continuing the study and treatment of leprosy." The substance of Dr. Arning's reply is: "That the scientific work connected with the etiology and pathology of leprosy, can, with surer prospects of success, be carried on here in its European centers, and this is actually being done; there are a number of bacteriologists \* \* \* at work on this intricate question, and slowly unraveling knot on knot towards its solution."

The report of the board of health for 1892 states that on "December 31, 1890, there were 1,213 lepers in the custody of the board, that being the highest number ever reached, and on March 31, 1892, there were only 1,115, a decrease of ninety-eight during the period." In regard to the segregation of lepers the report affirms that at this date, March 31, 1892, "there are very few known lepers at large, with the exception of perhaps seventeen at Kalalau, Kauai, but there are about sixty suspects at liberty in Honolulu and some in the outer districts, and more or less of them will, in time, become confirmed cases."

The same report shows that the cost of the "segregation, support, and treatment of lepers" for the biennial period closing March 31, 1892, was \$224,331.88.

In regard to venereal diseases, so well known as prevalent in the Hawaiian islands, the statement is made in the Medical Record for April, 1889, that the "effects of hereditary immunity \* \* \* has resulted in the production of a much milder form of the disease in the course of three or four generations. At the present day syphilis in the Sandwich islands is comparatively a benign disease, and furnishes but a small contingent to the sum of mortality." The writer, Dr. P. A. Morrow, states that, "not only has the disease moderated in severity, but according to the testimony of numerous physicians, \* \* \* it has materially decreased in frequency." The writer also asserts the "comparative rarity of hereditary transmission" of syphilis in the islands, and explains it by the fact that the native Hawaiians of to-day are a sterile race. "In some of the districts the percentage of births does not exceed 2 per 1,000 instead of 28 per 1,000, as it should be to balance the mortality rate."



## APPENDIX I.

1. *Australia*.\* (U. S.) Tonnage, gross, 2,737; under deck, 1,737; net, 1,715. Length, 376.9. Breadth, 37.4. Depth, 18.7. Built 1875. J. Elder, Glasgow.
2. *Zealandia*.\* (Hawaiian.) Tonnage, gross, 2,730; under deck, 1,734; net, 1,713. Length, 377.0. Breadth, 37.1. Depth, 18.6. Built by J. Elder & Son, Glasgow.
3. *Alameda*.\* (U. S.) Tonnage, gross, 3,158; under deck, 2,936; net, 1,839. Length, 314.0. Breadth, 41.0. Depth, 17.3. Built by W. Cramp & Sons, Philadelphia, 1883.
4. *Mariposa*.\* (U. S.) Tonnage, gross, 3,158; under deck, —; net, 1,939. Length, 314.0. Breadth, 41.0. Depth, 17.3. Built by Cramp & Sons, 1883.
5. *Monowai*. (British.) Tonnage, gross, 3,433; under deck, 3,320; net, 2,137. Length, 330.0. Breadth, 42.2. Depth, 24.8. Built by W. Denny & Bros., Dumbarton.
6. *City of Peking*. Tonnage, gross, 5,080; under deck, 3,129. Length, 423. Breadth, 48. Depth, 27.8. Roach & Sons, Chester, Pa.
7. *City of Rio Janeiro*. Tonnage, 3,548, gross; 2,275, net. Length, 344. Breadth, 38. Depth, 28.9. Roach & Sons, Chester, Pa.

In addition to the above the following named ships of the Pacific Mail S. S. Co.'s fleet are on the Pacific coast:

*China*, 5,100; *City of Sydney*, 3,010; *Peru*, 3,617; *Colima*, 2,905; *City of Rio*, 3,548; *Colon*, 2,685; *City of New York*, 3,019; *Acapulco*, 2,572; *San José*, 2,180; *San Blas*, 2,180; *Starbuck*, 2,157; *San Juan*, 2,076; *Clyde*, 2,016; *Banacouta*, 1,659 (Eng. reg.); *Costa Rica*, 1,600; *City of Panama*, 1,500.

### HAWAIIAN REGISTERED VESSELS.

#### MERCHANTMEN AND TRADERS.

Register.	Class.	Name.	Tons.	Registered owners.
257	Steamer	Zealandia	1,938.00	John S. Walker.
259	Bark	Lady Lampson	424.35	C. Brewer & Co.
281	Steamer	San Mateo	2,291.66	M. E. M. Makalua.
283	Bark	Andrew Welch	850.58	C. Brewer & Co.
285	do	Foohing Suey	980.73	Do.
290	do	Mannaala	779.22	John S. Walker.
295	Brig	Geo. H. Douglas	251.53	Do.
299	Bark	Leahi	536.84	W. C. Wilder.

#### COASTERS—STEAMERS.

177	Steamer	Likeli	382.34	Wilder Steamship Company.
190	do	Kilauea Hou	153.10	Do.
196	do	Mokolii	49.21	Do.
204	do	Lehua	129.80	Do.
243	do	Kinau	773.07	Do.
286	do	Hawaii	227.44	Do.
291	do	Claudine	609.16	Do.

\*Agents, Spreckels & Bros., 329 Market street, San Francisco, also agents for line of sailing vessels, noted on page 1.

## COASTERS—STEAMERS—Continued.

Register.	Class.	Name.	Tons.	Registered owners.
207	do	James Makee	136. 61	Inter Island Steam Navigation Company.
218	do	C. R. Bishop	142. 76	Do.
224	do	Iwalani	239. 81	Do.
247	do	W. G. Hall	380. 27	Do.
262	do	Waialeale	175. 60	Do.
269	do	Mikahala	353. 24	Do.
278	do	Pele	134. 02	Do.
272	do	Kaala	90. 53	Do.
195	do	Waimanalo	49. 81	J. A. Cummins.
268	do	Kaimiloa	79. 44	Waimanalo Sugar Company.
266	do	J. A. Cummins	198. 83	Inter Island Steam Navigation Company.
275	do	Annie	5. 37	J. I. Dowsett.
284	do	Akamai	29. 27	J. A. Dower.
294	do	Rover	15. 26	C. H. Wetmore.
296	do	Frolic	11. 32	O. R. & L. Co.

## COASTERS—SAILING.

41	Schooner	Rob Roy	25. 49	J. I. Dowsett.
155	do	Mille Morris	22. 32	F. Wundenberg.
183	do	Haleakala	56. 63	Wilder's Steamship Company.
185	do	Mary E. Foster	73. 29	Inter Island Steam Navigation Company.
276	do	Lavinia	40. 06	John Nui.
197	do	Liholiho	70. 92	Inter Island Steam Navigation Company.
200	do	Luka	70. 52	Allen & Robinson.
205	do	Mokuola	17. 10	Loo Ngawk.
215	do	Kauikeaouli	72. 13	Allen & Robinson.
220	do	Josephine	8. 88	F. Wundenberg.
248	do	Sarah & Eliza	15. 49	W. F. Williams.
244	Sloop	Kawailani	24. 39	Loo Ngawk.
250	Schooner	Kulamanu	85. 22	S. C. Allen.
279	do	Kamoi	108. 06	Do.
256	do	Heeia	36. 10	J. I. Dowsett.
260	do	Moi Wahine	147. 25	S. C. Allen.
263	do	Kaulilua	47. 96	Inter Island Steam Navigation Company.
287	Sloop	Keaolani	3. 48	Wm. Hokonui.
289	Tern	Alika	72. 10	J. I. Dowsett.
292	Schooner	Ka Hae Hawaii	22. 73	Lau Chong.
293	do	Manana	8. 09	Sing Chong & Co.
297	Sloop	Kaiulani	12. 93	Do.
298	Schooner	Liliu	47. 26	J. F. Colburn.
300	Sloop	San Pedro	4. 07	F. Gomes & Co.
301	do	Ekekela	4. 17	S. Hale.

## HAWAIIAN ISLANDS POSTAL SERVICE.

GENERAL POST OFFICE, Honolulu, Oahu.

## POST OFFICES ON OAHU.

Ewa.	Waialua.	Punaluu.	Heeia.
Honouliuli.	Kahuku.	Waiahole.	
Waianae.	Laie.	Kaneohe.	

## OVERLAND MAIL ROUTE, OAHU.

Leaves Honolulu at 10 a. m. on Wednesday each week for the circuit of the island, arriving back Thursday afternoon or Friday morning. For Waianae, mail carrier leaves every Friday at 10 a. m.

Mail closes at 8.30 a. m. each day, for Ewa and Honouliuli Plantation, by the railroad, and returns at 12 m.

On Monday, Wednesday, and Friday, mail is dispatched for Waialua and Kahuku *via* Pearl City.

POST OFFICES ON MOLOKAI.

Kaunakakai.

Kamalo.

Pukoo.

POST OFFICE ON LANAI.

Lanai.

POST OFFICES ON KAUAI.

Kapaa.  
Kilauea.

Kekaha.  
Waimea.

Hanalei.  
Lihue.

Koloa.  
Makaweli.

MAIL ROUTES ON KAUAI.

From Lihue to Waimea.—Leaves Lihue post office every Wednesday morning, arriving at Koloa about noon and at Waimea and Kekaha in the evening of the same day. On returning leaves Waimea on Saturday morning, arriving at Koloa about noon and Lihue in the afternoon.

From Lihue to Hanalei.—Leaves Lihue post office every Wednesday morning, arriving at Kapaa in the forenoon, at Kilauea about noon, and Hanalei in the afternoon of the same day. On returning leaves Hanalei on Friday and arrives at Kilauea Friday evening. Leaves Kapaa about Saturday noon and arrives at Lihue in the afternoon.

POST OFFICES ON MAUI.

Lahaina.  
Wailuku.  
Makawao.  
Hana.

Hamoā.  
Spreckelsville.  
Ulupalakua.  
Honokohau.

Kipahulu.  
Kahului.  
Paia.  
Haiku.

Hamakuapoko.  
Huelo.  
Honokowai.

OVERLAND MAIL ROUTES, MAUI.

From Lahaina to Kaanapali and Kahakuloa, every ten days, mail closes about 9 a. m. on Wednesday or Saturday after arrival of steamer *Kinau* from Honolulu.

From Ulupalakua to Hana, weekly, mail closes in the morning on arrival of mails from steamer *Kinau*.

From Paia to Hana, weekly, mail closes soon after arrival of steamer mails on Tuesdays or Wednesdays.

MAUI MAIL ROUTES.

From Paia to Makawao, daily.

From Paia to Haiku, daily.

From Paia to Huelo, twice a week.

From Paia to Ulupalakua, *via* Makawao, weekly.





## APPENDIX II.

### TABLE OF OVERLAND DISTANCES.

#### OAHU.

*Honolulu Post Office To—*

	Miles.
Bishop's Corner (Waikiki).....	3.2
Waikiki Villa .....	3.6
Race Course .....	4.5
Diamond Head .....	5.9
Kalawai .....	6.0
Thomas square.....	1.0
Hawaa corners .....	2.0
Kamouiliili .....	3.3
Telegraph hill .....	5.0
Waialae.....	6.2
Niu.....	8.8
Koko head.....	11.8
Makapuu .....	14.8
Waimanalo.....	20.8
Waimanalo <i>via</i> Pali .....	12.0
Nuuanu bridge.....	1.1
Mausoleum .....	1.5
Electric reservoir .....	2.7
Honolulu dairy .....	2.9
Laukaha .....	4.3
Pali .....	6.2
Kaneohe (ne wroad).....	10.7
Waihole .....	17.7
Kualoa .....	20.7
Kahana .....	25.2
Punaluu .....	27.2
Hauula .....	30.2
Laie .....	33.2
Kahuku mill.....	36.0
Kahuku ranch .....	38.8
Moanalua .....	3.4
Kalauao .....	7.4
Ewa church .....	10.2
Kipapa .....	13.6
Kaukonahua .....	20.0
Leilehua .....	20.0
Waialua .....	28.0
Waimea.....	32.4
Kahuku ranch .....	39.4
Ewa church .....	10.2
Waipio (Brown's) .....	11.2

*Honolulu Post Office to—*

	Miles.
Hoaeae (Robinson's) .....	13.5
Barber's point, L. H. ....	21.5
Nanakuli .....	23.5
Waianae plantation .....	29.9
Kahanahaiki .....	36.9
Kaena point .....	42.0

*Waialua To—*

Kaena point .....	12.0
-------------------	------

## HAWAII.

## SOUTH KOHALA.

*Kawaihae To—*

Puu Ainako .....	4.4
Puuiki (Spencer's) .....	7.7
Waiaka Catholic church .....	9.5
Puuopule (Parker's) .....	10.8
Waimea courthouse .....	11.8
Waimea church .....	12.2
Kukuihaele church .....	22.1
Mana (Parker's) .....	19.5
Keawewai .....	6.0
Puuhue ranch .....	10.0
Kohala courthouse .....	15.0
Mahukona .....	11.0
Napuu .....	20.0
Puako .....	5.9

*Waimea Courthouse to—*

Hamakua boundary .....	4.5
Kukuihaele mill .....	11.0
Mana .....	7.7
Hanaipoe .....	15.0
Keanakolu .....	24.0
Puakala .....	34.0
Laumaia .....	36.5
Humuula sheep station <i>via</i> Laumaia .....	47.5
Auwaiakেকua .....	12.5
Humuula sheep station .....	29.0
Hilo <i>via</i> Humuula station .....	54.0
Keamuku sheep station .....	14.0
Napuu .....	22.0
Keawewai .....	8.0
Waika .....	11.0
Kahuwa .....	13.0
Puuhue .....	17.0
Kohala courthouse .....	21.0
Mahukona .....	22.0
Puako .....	12.0



*Hilo Courthouse through Puna to—*

	Miles.
Keaau .....	9.3
Makuu .....	15.9
Sand hills, Nanawale .....	18.5
Puula .....	21.5
Kapaho .....	23.0
Pohoiki (Rycroft's) .....	20.5
Opihikao .....	29.7
Kaimu .....	37.0
Kalapana .....	38.0
Panau .....	45.0
Volcano house .....	61.0

*Laupahoehoe Church through Hamakua to—*

Bottom of Kawalii gulch .....	2.0
Ookala (manager's house) .....	4.0
Kealakaha gulch .....	6.0
Kaala church .....	6.8
Kukaiau gulch .....	8.0
Horner's .....	8.5
Catholic church, Kainehe .....	9.0
Notley's, Paaailo .....	10.5
Kaumoali bridge .....	12.5
Bottom of Kalopa gulch .....	14.0
R. A. Lyman's, Paauhau .....	15.2
Paauhau church .....	16.3
Miles' store, Honokaa .....	18.0
Honokaia church .....	20.5
Kauikalua gulch .....	22.0
Kapulena church .....	23.9
Waipanihua .....	24.3
Bicknell's .....	25.8
Stream at Kukuihaele .....	26.0
Edge Waipio .....	26.5
Bottom Waipio .....	27.0
Waimanu (approximate) .....	32.5

*Kukuihale to—*

Waimea (approximate) .....	10.5
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*Government Road to—*

Hamaku mill .....	1.5
Paauhau mill .....	1.0
Pacific sugar mill, Kukuihele .....	0.7

*Kau Volcano House to—*

Half-way house (Lee's) .....	13.0
Kapapala .....	18.0
Pahala .....	23.0
Punalu .....	27.6
Honuapo .....	32.6
Naalehu .....	35.6
Waiohinu .....	37.1
Kahuku ranch .....	43.1

*Hilo to—*

	Miles.
Volcano.....	4.5
Edge of woods.....	7.2
Cocoanut grove.....	9.2
Through Ki swamp.....	14.0
Hawelu's half-way house.....	16.0
Kanekoa upper half-way house.....	24.0
Upper woods.....	30.2
Volcano house.....	

*Kona, Kalakekua, to—*

Kiauhou.....	6.0
Holualoa.....	9.6
Kailua.....	12.0
Koloko.....	16.0
Makalawena.....	19.6
Kiholo.....	27.6
Ke Ahu a Lono boundary.....	31.6
Puako.....	37.4
Kawaihae.....	42.0
Honaunau.....	4.0
Hookina.....	7.7
Olemloana.....	15.2
Hupulua.....	21.6
Boundary of Kau.....	24.8
Flow of '87.....	32.0
Kahuku ranch.....	36.5

*Foreign Church, Kohala, to—*

Edge of Pololu gulch.....	4.0
Niulii mill.....	2.8
Dr. Wright's store, Halawa.....	1.6
Halawa mill.....	1.6
Hapuu landing.....	2.1
Dramatic hall.....	0.4
Kohala mill.....	0.5
Kohala mill landing.....	1.5
Native church.....	1.0
Star mill railroad station.....	2.5
Union mill.....	2.2
Union mill railroad station.....	3.2
Honomakau.....	2.5
Hind's, Hawi.....	3.3
Hawi railroad station.....	4.2
Hono Wipu.....	7.3
Mahukona.....	10.5
Puuhue ranch.....	7.2

## LIST OF AUTHORITIES QUOTED IN THE FOREGOING REPORT.

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Maps and naval charts.

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Prepared in the Adjutant-General's Office (Military Information Division),

Under the direction of Major J. B. BARCOCK, Assistant Adjutant General,

By Captain GEORGE P. SCRIVEN, Signal Corps,

ASSISTED BY

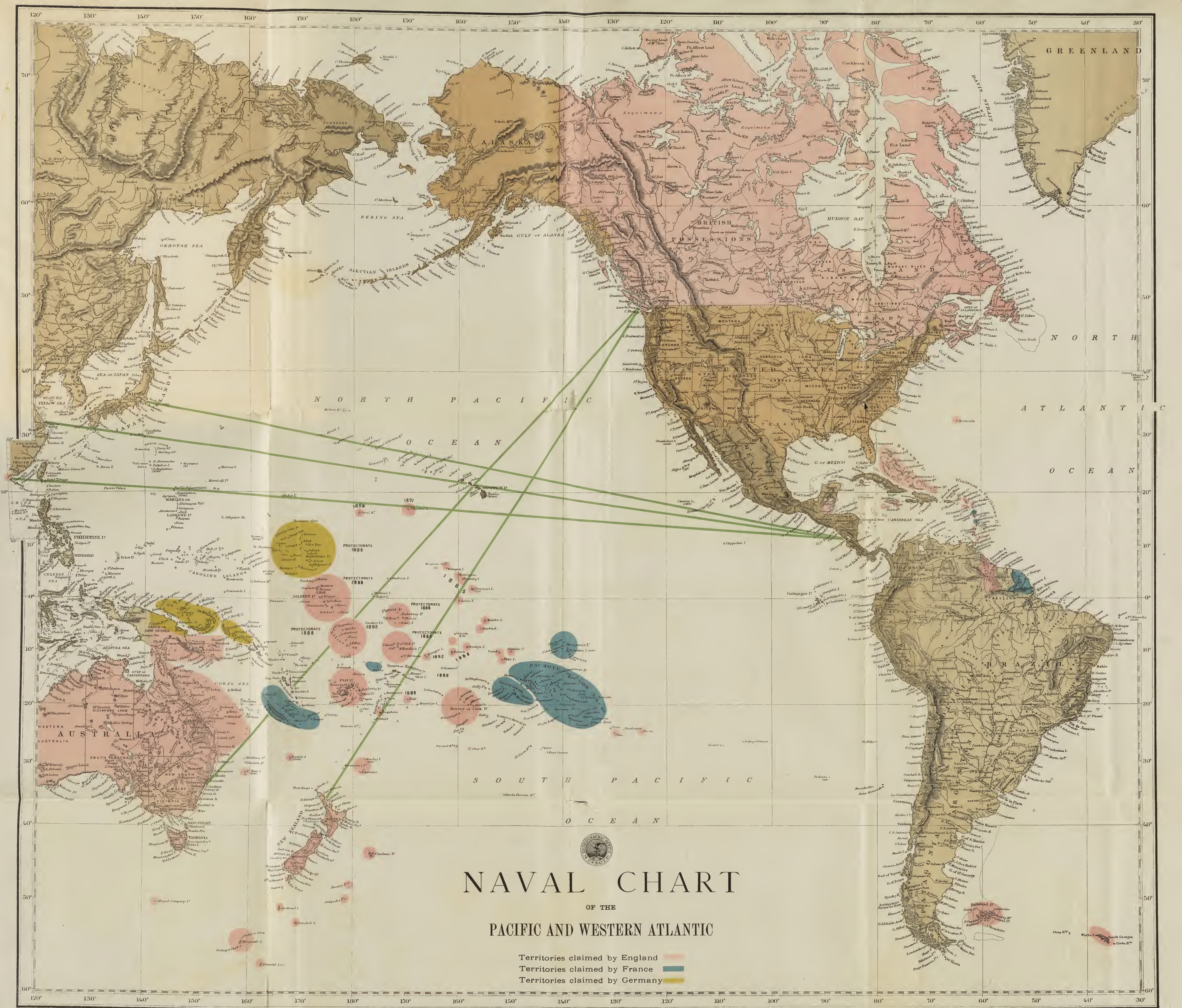
Lieutenant J. Y. MASON BLUNT, Fifth Cavalry.

*February, 1893.*









# NAVAL CHART

OF THE

## PACIFIC AND WESTERN ATLANTIC

Territories claimed by England

Territories claimed by France

Territories claimed by Germany













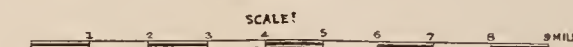
# OAHU

## HAWAIIAN ISLANDS

Reproduced from Hawaiian Government Survey.

W. D. ALEXANDER,  
SURVEYOR GENERAL.

1881



### OAHU RAILWAY.

#### DISTANCES FROM HONOLULU DEPOT.

MOANALUA	2.76
PUULOA	6.23
HALAWA	8.14
AIEA	9.37
KALAUAO	10.20
WAIU	10.93
PEARL CITY	11.76
WAIKAWA	12.52
WAIPIO	13.58
WAIKELE	14.57
HOAEAE	15.23
EWA PLANTATION MILL	18.25

### HONOLULU POST OFFICE TO

BISHOP'S CORNER (WAIKIKI)	3.2	
WAIKIKI VILLA	3.6	
RACE COURSE	4.5	
DIAMOND HEAD	5.9	
KAALAWAI	6.0	
THOMAS SQUARE	1.0	
PAWAA CORNERS	2.0	1.0
KAMOILILI	3.3	1.3
TELEGRAPH HILL	5.0	1.7
WAIKALAE	6.2	1.2
NIU	8.8	2.6
KOKO HEAD	11.8	3.0
MAKAPUU	14.8	3.0
WAIMANALO	20.8	6.0
WAIMANALO, VIA PALI	12.0	
NUUANU BRIDGE	1.1	
MAUSOLEUM	1.5	0.4
ELECTRIC RESERVOIR	2.7	1.2
HONOLULU DAIRY	2.9	0.2
LUAKAHA	4.3	1.4
PALI	6.2	1.9
KANEOME (NEW ROAD)	10.7	4.5
WAIKALAE	17.7	7.0
KUALOA	20.7	3.0
KAHANA	25.2	4.5
PUNALUU	27.2	2.0
HAUULA	30.2	3.0
LAIE	33.2	3.0
KAHUKU MILL	36.0	2.8
KAHUKU RANCH	38.8	2.8

MOANALUA	3.4	
KALAUAO	7.4	3.0
EWA CHURCH	10.2	2.8
KIPAPA	13.6	3.4
KAUKONAHUA	20.0	6.4
LEILEHUA	20.0	
WAIKALUA	28.0	8.0
WAIKAWA	32.4	4.4
KAHUKU RANCH	37.4	7.0

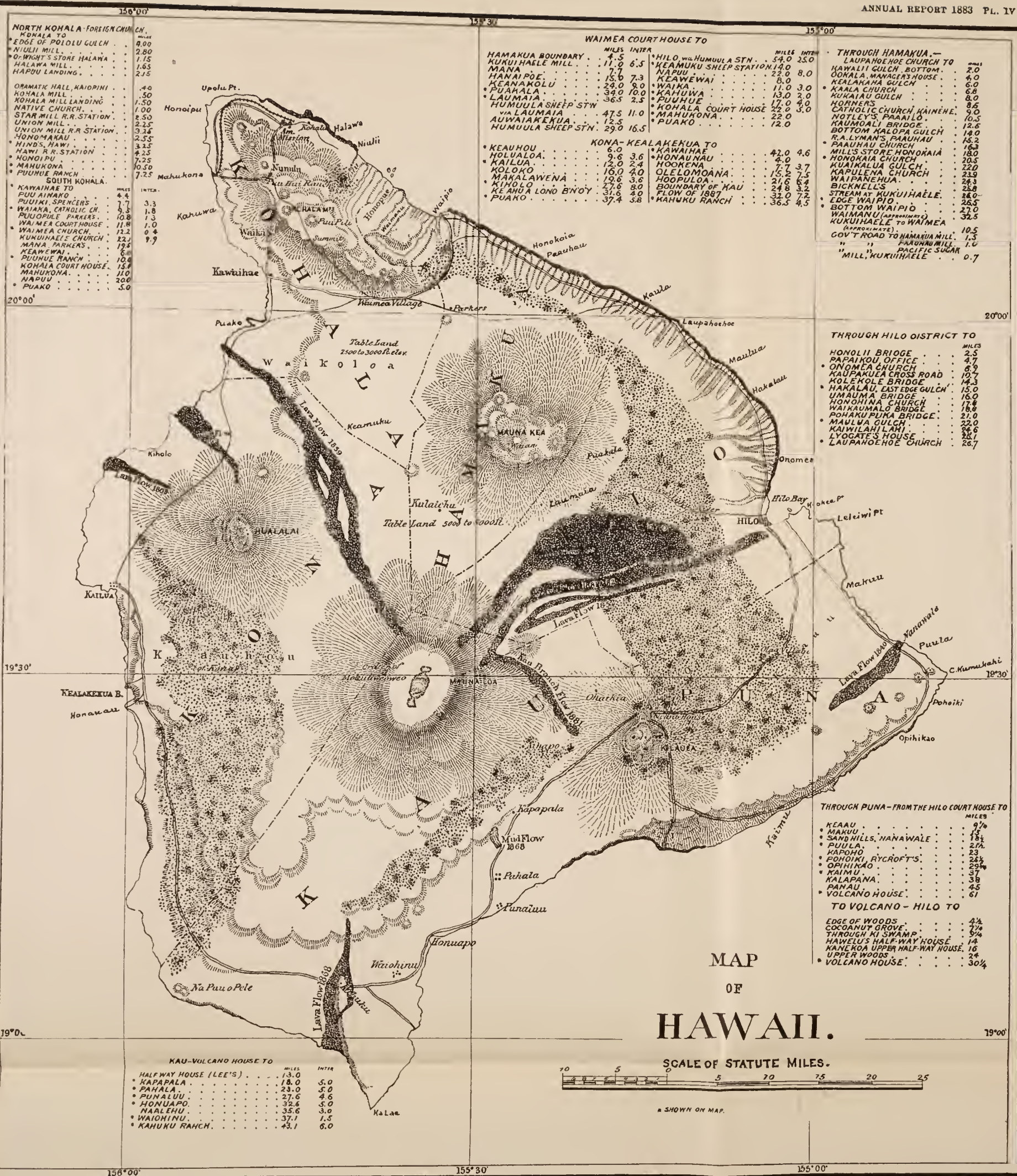
EWA CHURCH	10.2	
WAIPIO (BROWN'S)	11.2	1.0
HOAEAE (ROBINSON'S)	13.5	2.3
BARBERS POINT L.H.	21.5	8.0
NANAKULI	23.5	2.0
WAIKALAE PLANTATION	29.9	6.4
KAHANAHAKI	36.9	7.0
KAENA POINT	42.0	5.1
WAIKALUA TO KAENA POINT	12.0	

\* SHOWN ON MAP.





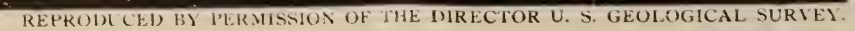












Additions by C. H. Ourand, Feb. 1893.  
Military Information Division, A. G. O.







# KAUAI

## GOVERNMENT SURVEY

1878

Scale 1/125000

### NAWILIWILI TO

	MILES	INTER.
KOLOA	11.0	
LAWAI	13.8	2.8
HANAPEPE	20.0	6.2
WAIKOA	27.1	7.1
WAIKOA	31.5	4.4
NALOLO	44.8	13.3
HANAMAULU	3.3	
WAILUA RIVER	7.7	4.4
KEALIAL	11.9	4.2
ANAHOLA	15.7	3.8
KILAUEA	23.6	7.9
KALIHUAI	26.6	3.0
HANAPEPE	31.8	5.2
WAINIA	34.8	3.0
NALOLO (NO ROAD)	47.0	12.2



### AUTHORITIES

This Map is compiled from various Surveys, chiefly those of T. METCALF, W. WEBSTER, J. F. BROWN, J. W. GAY, and J. W. MARSH. The Triangulation of the Island was executed by J. F. BROWN for Plan of which, see accompanying Sheet. The Coast Lines are credited as follows. From HAENA to KALIHUAI inclusive to T. METCALF. From ANAHOLA to NAWILIWILI inclusive, also of lands of PAA, KOLOA, LAWAI, HANAPEPE, MAKAWALE, and WAIKOA to J. W. GAY. That of KALAHEO to W. WEBSTER. From ALIOMANU to KAKAANUI inclusive to J. W. MARSH. From KILAUEA to PILAA inclusive, also of lands of MAHALEPU, KIPU and NUMULU to J. F. BROWN.

W. D. ALEXANDER Surveyor General

Compiled and Drawn by

C. S. KITTREDGE

TRACING BY W. WALL



6/1/19

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